A Review of the Literature on Second Language Learning

Prepared by

The Language Research Centre (LRC) of the University of Calgary

Dr. John Archibald (Principal Investigator)
Dr. Sylvie Roy (Principal Investigator)
Sandra Harmel (Research Associate)
Karen Jesney (Research Associate)

This literature and research review was conducted to provide information to guide future work on the Languages Initiative. Although direction was given to the researchers/writers to establish parameters for the task, the content of this document reflects the writers' perspectives on topics and subjects reviewed and does not necessarily reflect the position of Alberta Learning.

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Table of Contents

Message from the LRC Research Team v
Executive Summary 1
Terms of Reference 3
Background on Bilingualism 3
Benefits of Learning a Second Language 4
References 4

I. **The Effect of the Second Language (L2) on the First Language (L1)** 5
Phonetics 5
Attrition 6
Reverse Transfer 6
Bilingualism and General Cognition 8
Literacy 11
Minority Language Maintenance 14
French Immersion 15
Instructional Timing 15
Instructional Timing and Second Language Proficiency 16
Intensive French 17
References 21

II. **The Role of Content Instruction in Offering a Second Language (L2)** 24
Introduction 24
Models of Content-based Language Teaching 25
Content Learning in Content-based Language Classrooms 26
Language Learning in Content-based Language Classrooms 28
Intensive Core French 31
Further Rationale for Content-based Language Teaching 32
Summary 33
References 34

III. **The Effects of Second-language (L2) Learning on Students with Special Needs** 38
Culturally and Linguistically Diverse Students/Students with Special Needs 38
Assessment of Students with Special Needs 39
Teaching to Students with Special Needs 40
Cognitive Approach and Students with Special Needs 43
Other Studies in Special Education 47
References 51

IV. **The Effects of Learning a Third Language (L3) on Students for Whom English Is a Second Language (L2)** 55
Introduction 55
Definition of Multilingualism/Trilingualism 56
The Home Life of Trilinguals 57
Education and Third Language Acquisition 58
Effects of Learning Three Languages 59
References 62

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V. Conclusion 64

Biographies 65
Contact Information 65

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Message from the LRC Research Team

The Language Research Centre (LRC) at the University of Calgary is a joint initiative between the Faculties of Humanities, Social Sciences and Education. One of the main goals of the LRC is to undertake research into language learning and teaching.

The LRC was contracted to produce a report on several aspects of second-language learning within the context of the upcoming Alberta Learning Languages Initiative which is to be implemented in Grade 4 as of 2006. This Initiative will be phased in one grade level each year until 2011–2012.

We were asked to provide a review of current literature which was to inform the following four questions.

(1) What are the effects of learning a second language on the first language?
(2) What is the role of content instruction in offering a second language?
(3) What are the effects of learning a second language on students with special needs?
(4) What are the effects of learning a third language on students for whom English is a second language?

In these reviews, we provide an overview of the challenges and benefits for those who are learning a second language.

Given the diversity of these four questions, the range of literature that we have surveyed in this report is very broad. We have consulted academic journals, books, conference proceedings, technical reports and online materials. While we have done our best to ensure that we have distilled the authors' research and analysis accurately, we would always advise readers who are interested in more information to consult the original work. By nature, when attempting to summarize complex inquiries, some details must be left out.

We would like to thank John Sokolowski, Bryan Ellefson, Janice Aubry, Lisa Caouette and all the others we met with at Alberta Learning for giving us the opportunity to work on this project and for their support and insights while we were writing it.

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Executive Summary

I. The Effect of the Second Language (L2) on the First Language (L1)

- Exposure to a second language can: (1) enhance the complexity of first-language syntax used; (2) enhance language use skills (narrative strategies, reading and writing literacy skills in the first language, vocabulary scores); (3) enhance non-linguistic skills (divergent thinking; metalinguistic skills; attitudes toward others; mathematics scores and skills).
- Acquiring knowledge in a second language does not impede the ability to access that knowledge in the first language.
- Negative effects of the second language on the first language (such as accented first-language speech or loss of access to first-language knowledge) will not occur under the Languages Initiative.

II. The Role of Content Instruction in Offering a Second Language (L2)

- Numerous models of content-based language programs exist, each illustrating a different balance between content-area and second-language learning outcomes. Student second-language proficiency levels, the nature of the content material and the amount of time devoted to the program all need to be considered in choosing an appropriate model for any given context.
- Students in time-intensive content-based language teaching (CBLT) programs, such as French immersion, are typically able to master complex content material effectively, despite less than native-like proficiency in the language of instruction.
- In programs where students have limited second-language proficiency and less time is devoted to second-language learning, the concrete and highly-contextualized content found in content-based language teaching programs is the most effective method of teaching.
- In terms of language learning, content-based language teaching is a time-efficient and effective way of promoting the development of general second-language skills.
- The development of second-language grammatical accuracy needs to be explicitly promoted in content-based language teaching classrooms. This can be accomplished through the integrated teaching of language structures and vocabulary.
- Ultimately, one of the main benefits of content-based language teaching is its ability to encourage students to make connections between second-language study and the outside world. This, in turn, can increase motivation and reinforce learning across the curriculum.

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III. The Effects of Second-language (L2) Learning on Students with Special Needs

- There is a great deal of research that looks at the difference between students who are culturally and linguistically diverse versus those with disabilities.
- A second body of research focuses on how to assess students with special needs in second-language classrooms. Various checklists are proposed to enable differentiation between students who are culturally and linguistically diverse and those with disabilities.
- A third body of research focuses on how to teach students with disabilities. Some research suggests adapting the second-language teaching by focusing on the analytical method of teaching the language. However, much of this research does not have an empirical basis.
- A fourth body of research explores a more cognitive framework. This research looks at how bilingual students with special needs perform word recognition tasks compared to monolingual students; how students with dyslexia perform in second language learning; language impairment in bilingual and monolingual students; and the connection between learning disabilities in first-language and second-language learning. Research on students with dyslexia attempts to learn more about their phonological system and the negative effect it has on their ability to deal with an alphabetic script that emphasizes phonological skills. In research on language impairment and word recognition, bilingual students with special needs have not been found to exhibit more profound deficits than their monolingual peers.
- In sum, all of this research looks at how to assess students in second-language classrooms; how to teach students with special needs in second-language classrooms; and problems related to specific concerns such as dyslexia, word recognition, learning disabilities and differences between learning a first language and learning a second language.

IV. The Effects of Learning a Third Language (L3) on Students for Whom English is a Second Language (L2)

- The acquisition of a third language is a common occurrence around the world. Five types of trilinguals have been established, with most being bilinguals who acquire a third language. Although Canada is not officially a trilingual community, the number of trilinguals in Canada and in Canadian schools is growing. Students for whom English is a second language will become trilinguals if they take another language course. We have found no discussion of monolinguals acquiring a second and third language simultaneously, or of sequential acquisition where the second language is acquired in Kindergarten and the third language in Grade 4.
- Learning a third language is aided by proficiency in the first language, and acquired skills can be transferred among the languages spoken. Students for whom English is a second language may benefit from third-language acquisition, depending on the model of instruction.

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Terms of Reference

The Language Research Centre (LRC) at the University of Calgary was contracted to produce a report on several aspects of bilingualism and multilingualism within the context of the impending Alberta Learning policy of mandatory second-language instruction for 95 hours per year starting in Grade 4 in 2006.

This report provides an overview of the current literature relating to:

(1) the effects of learning a second language on the first language
(2) the role of content instruction in offering a second language
(3) the effects of learning a second language on students with special needs
(4) the effects of learning another language on students for whom English is a second language (third language acquisition).

Background on Bilingualism

Terms such as bilingualism and multilingualism are complex. Does an individual need to have equal proficiency in two languages before earning the right to be called bilingual? Is someone who has just taken one course in Spanish bilingual? Clearly there are many different profiles of people who may be called bilingual. Children who grow up learning two languages simultaneously in the home acquire, essentially, two mother tongues (Swain 1972). However, there are many other possible patterns that result in different outcomes.

- If second-language acquisition begins at age 5, it follows a different pattern than when second-language acquisition begins at age 25 or at age 15 (Birdsong 1999).

- When majority-language children (e.g., English-speaking children in Alberta) are immersed in a minority language (e.g., French in Alberta), they have a different learning profile than when minority-language children (e.g., Arabic-speaking children in Alberta) are submersed in the majority language (Cummins and Swain 1986).

- When children receive up to 50% of their instruction in a second language, a different profile emerges than when they receive only 5% or 10% of their instruction in a second language (Harley, d'Anglejan and Shapson 1990).

This report will try to be explicit as to the kind of second-language learner and the kind of second language learning environment referred to in each of the following studies.

Learning a second language for 95 hours per year for six years will not lead to functional bilingualism and fluency in the second language. Expectations must be realistic.

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Benefits of Learning a Second Language

Around the world today, there are more and more children and adults who, for personal, aesthetic, academic and economic reasons, are becoming multilingual. It is a fact that there are more bilingual brains on the planet than monolingual ones. Whether it be to find new literatures, or friends, or business markets, or to maintain a connection with the historic past of a heritage language, there are many reasons to learn something of a second language. This backgrounder will conclude by discussing some of the advantages of being exposed to a second language. The report proper will discuss cognitive advantages that can arise from achieving a particular level of proficiency in a second language.

For centuries it has been acknowledged that learning about other peoples, other cultures and other languages broadens the mind. Historically, individuals were exposed to languages such as Latin and Greek in school to give them access to a rich literature, and to enable a deeper appreciation of the history and structure of the English language. More recently, students have had the opportunity to be exposed to international languages, heritage languages, official languages (French and English) and Aboriginal languages.

Exposure to these other languages enhances cultural awareness. Students learn that cultural practices vary around the world. They learn respect for members of other cultures and speakers of other languages. It has been argued that it is much more difficult to be judgemental in the face of an individual whom you know than it is to be judgemental to an unknown group. By extension, it is to be hoped that the kind of inclusive, anti-racist education fostered by exposure to second languages will have long-term positive effects with respect to Alberta students' empathy toward people who come from other cultures and who speak other languages, as well as fostering an appreciation of the linguistic and cultural history of Alberta.

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I. The Effect of the Second Language (L2) on the First Language (L1)

- Exposure to a second language can: (1) enhance the complexity of first-language syntax used; (2) enhance language use skills (narrative strategies, reading and writing literacy skills in the first language, vocabulary scores); (3) enhance non-linguistic skills (divergent thinking; metalinguistic skills; attitudes toward others; mathematics scores and skills).
- Acquiring knowledge in a second language does not impede the ability to access that knowledge in the first language.
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Phonetics

Learning an L2 may affect the way an individual pronounces the L1.

- Flege, J. E. (1987). "The Production of 'New' and 'Similar' Phones in a Foreign Language: Evidence from the Effect of Equivalence Classification."

  This study found that when someone from an L1 (e.g., Arabic) with short-lag voice onset time (i.e., unaspirated voiceless consonants) acquires a language (e.g., English) with long-lag voice onset time (i.e., aspirated voiceless consonants) the individual may begin to produce Arabic consonants with longer-lag voice onset time than monolingual Arabic speakers.

- MacKay, I. and J. Flege. (2004). "Effects of the Age of Second Language Learning on the Duration of First and Second Language Sentences: The Role of Suppression."

  It has been reported before that non-native speakers tend to produce sentences of longer duration than native speakers, due to a slower speech rate. This study looked at the speaking rate of early-bilinguals and late-bilinguals whose L1 was Italian and L2 was English. The study found that subjects whose L2 was acquired later in life produced significantly shorter L1 sentences than the subjects who acquired the L2 early in life.

The L2 will only affect the phonetic production of the L1 when the users are highly proficient in both languages and spend considerable time interacting in the L2. This is not a concern for students who are exposed to 95 hours of instruction in an L2 per year.

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Attrition

There are circumstances under which the prolonged speaking of an L2 can lead to the loss of the L1. Much attrition literature looks at language loss at the societal or cultural level, but there is also some research focusing on the individual.

- Seliger, H. and R. Vago. (1991). *First Language Attrition.*

  This collection contains a number of studies that looked at the loss of an L1. Many of the studies report on the loss of access of L1 skills after long periods of L1 inactivity. One study reports on the loss of L1 in children who move to another linguistic culture. This collection serves as a reminder of the difficulty faced by those who seek to maintain proficiency in a minority language. For the purpose of this report, these studies are not directly relevant to the study of majority-language speakers (i.e., English speakers) learning an L2 in Alberta. The issue of non-English speakers is explored in Part IV of the report.

Loss of the skills and knowledge in the L1 is found only under circumstances where speakers have been immersed in the L2 context for many years. Even then, much of the loss is in access as opposed to knowledge. Low frequency words may show reduced accessibility. This is not a situation that will arise in the Alberta school system by exposing students to 95 hours of instruction in an L2 per year.

Reverse Transfer

What other effects might acquiring an L2 have on an L1? Following is a summary of work in the domain known as "reverse transfer." Much literature focuses on the effects of the L1 on the L2 ("transfer"), but the reverse may also happen.

- Jarvis, S. (2003). "Probing the Effects of the L2 on the L1: A Case Study."

  The author reports on a Finnish/English bilingual woman whose Finnish (L1) took on the characteristics of English (L2). He argues that this is a case of the L2 influence resulting in an expanded L1 repertoire. The L1 rules are still there but the L2 rules are also used occasionally. This is a case study of an individual who grew up in Finland and moved to the Unites States of America at age 23. She had studied English in school from grades 3 to 12, and spent a year abroad at age 15. At the time of the study, she was 34, lived in the United States and continued to use Finnish on a daily basis. She was a highly-advanced near-native speaker of English. During the study, she made some morphological errors and some phrasal errors that could be attributed to English influence. However, there was still variation and she also used the "correct" L1 forms. The deviant forms were only produced in casual, natural speech and not in a more formal elicitation session.

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- Kecskes, I. (1998). "The State of L1 Knowledge in Foreign Language Learners."

  This study looked at speakers of Hungarian as an L1 who were studying English, French or Russian as an L2 in classrooms. Subjects were between 14 and 16 years of age. Only written data were collected. The study sought to prove that "intensive and successful foreign language learning (FLL) can have a strong and beneficial influence on the development of L1 skills. FLL helps the internalization of the L1 because linguistic operations based on conscious ways of thinking used in the foreign language can be transferred to L1 activities" (pp. 325–326).

  L1 and L2 development were tested three times over two years. A modified version of the Bernstein-Lawton-Loban method was used to measure the qualitative level of L1 development. This is a measure of frequency of subordinate clause use, which is taken to be a measure of complexity. Three types of classes were studied:

  (1) Immersion Class: students studied certain content areas (mathematics, biology, chemistry) in French.
  (2) Specialized Class: students studied English (L2) in 7 or 8 foreign language classes per week. All content-area courses were taught in Hungarian.
  (3) Control Classes: students had 2 or 3 hours of L2 instruction in either English or Russian each week. All content-area courses were taught in Hungarian.

  The study found that:

  > although the immersion group (because their curriculum focused mainly on the L2) had fewer classes in the L1 (Hungarian language and literature) than the specialized and control classes, their production in L1 exceeded that of the other two types of classes…by the end of the experiment the L1 level of the specialized class exceeded that of the control class. (p. 335.)

- Kecskes, I. and T. Papp. (2003). "How to Demonstrate the Conceptual Effect of L2 on L1? Methods and Techniques."

  This paper focuses on the influence of L2 on L1 when the L2 is being taught in a relatively homogenous language community where the student does not have access to the target culture. The authors present a model of a Common Underlying Conceptual Base (CUCB). The level of proficiency in the L2 is connected to whether a CUCB develops. Taking only one L2 course will not lead to the development of a CUCB; some threshold must be achieved (in this sense reminiscent of Cummins and Swain's work (1986) on Dual Thresholds, to be discussed later). Until that proficiency level is reached, L2 learning is likely to be "no more than a kind of educational enhancement that may only slightly affect cognitive development and may not necessarily result in the emergence of a CUCB" (p. 249). Students need to move from an "L1-Conceptual Base" to a CUCB that has a Dual Language System. The authors are concerned with the cognitive enhancements that bilingualism can produce. "It is in the CUCB that thoughts originate, and then are mapped onto linguistic signs to reach the surface" (p. 249).

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Initial transfer is negative and from L1 to L2. At later stages of proficiency, the transfer can be positive and from L2 to L1. "This positive transfer is predominantly neither structural nor lexical but pragmatic knowledge and skill transfer."

- Kecskes, I. and T. Papp. (2000). *Foreign Language and Mother Tongue*.

  This is a book-length treatment of the subject matter raised in Kecskes (1998), discussed above. More detail is provided on the nature of the tests of linguistic complexity as well as tests of metaphoric density. There is also an in-depth discussion of why these results should occur, based on the theories of Vygotsky and Bruner.

- Pavlenko, A. and S. Jarvis. (2002). "Bidirectional Transfer."

  This study looked at the narrative abilities of 22 subjects who spoke Russian (L1) and English (L2). The subjects had all learned English as teenagers or adults after arriving in the United States of America. Their English was very proficient: they were all in credit programs at Cornell University and had TOEFL scores over 600. They watched various films with no dialogue and had to retell the story in both English and Russian. The authors report instances of L2 influence on the L1 in (1) semantic extension—words like "kamera" and "film" have more restricted meanings in Russian than English, and this was transferred back to Russian; (2) framing—English tends to use adjectival constructions, such as "She was sad," where Russian would use a verbal construction, such as "She was being sad," and this English construction was occasionally found in the Russian narratives. The authors' conclusion is relevant to the time factors involved in the languages initiative in Alberta (emphasis added):

  > Second language users who have been exposed to the second language for *three years or longer* through *intensive interaction* in the *target language context* may start exhibiting bidirectional transfer effects in their two languages... (p. 209.)

Bilingualism and General Cognition

Historically, the question of whether bilingualism can be a help or a hindrance to children has attracted diverse opinions. Studies at the beginning of the 20th century suggested that bilingual children could have problems in school. Later studies argued that advantages could be found in the bilingual mind. One of the reasons for this difference of opinion is that, as mentioned before, there are many ways of being bilingual. Cummins and Swain (1986, p. 18) propose the following model of bilingual proficiency, known as the Dual Threshold model.

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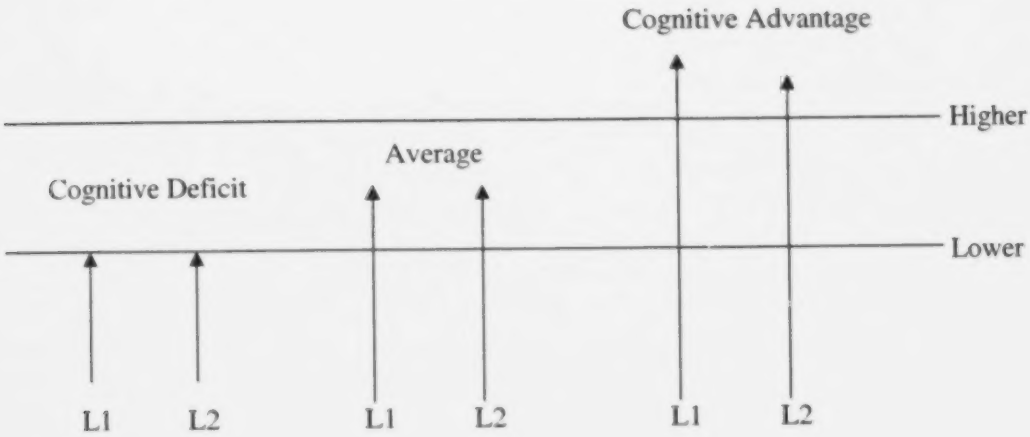

As this model suggests, subjects who have minimal proficiency in any language run the risk of having cognitive deficits. People who have average proficiency in one or more languages are average cognitively. People who achieve a higher level of proficiency in two or more languages will achieve cognitive advantages. Cummins and Swain's model provides the locus of explanation of the diverse results of early studies by pointing out that the studies were looking at very different types of bilinguals.

Many studies have reported on the general cognitive advantages that bilinguals have over monolinguals. For example, Bialystok (2001) argues that bilinguals have advantages over monolinguals in performing certain metalinguistic tasks. She states that bilingual children perform better than their monolingual peers in tasks that demand high levels of control, but there is no bilingual advantage in tasks for which the solution relies primarily on high levels of analysis of representational structures. The author contends that the distinction between "control" and "representation" is crucial. Control refers to the person's ability to use their linguistic or metalinguistic knowledge. It does not refer to the nature of the knowledge itself. The author suggests that bilinguals have the ability to transfer skills between the L1 and the L2, and that certain skills arise as a result of being bilingual. She cites advantages in such areas as metalinguistic ability, divergent thinking and attitudes. This conclusion is consistent with many of the studies reviewed in this report.

- Bournot-Trites, M. and K. Reeder. (2001). "Interdependence Revisited: Mathematics Achievement in an Intensified French Immersion Program.

  This study looked at the effect that teaching mathematics in French (L2) had on the evaluation of mathematics achievement administered in English (L1). More broadly speaking, the study looked at the effect of reduced instructional time in the L1. French immersion students were followed from grades 4 to 7. The treatment group received 80% of the core academic curriculum (including mathematics) in French and 20% in English. The control group received 50% of the core curriculum in French and 50% (including mathematics) in English. Achievement for both groups was measured at the end of Grade 6. The treatment group performed significantly better on a standardized mathematics test than

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did the control group. The authors conclude that the students who acquired their mathematical knowledge in French were able to retrieve it in English.

- de Courcy, M. and M. Burston. (2000). "Learning Mathematics Through French in Australia."

  This study looked at an early partial immersion program where children received 45% of their instruction in French and 55% of their instruction in English from Kindergarten to Grade 6. Mathematics was taught in French for the entire program. The students took a mathematics test every year. Half the students took it in English and half the students took it in French. In the first year of testing, there was no significant difference between the two groups. By Grade 5, students who took the test in English did significantly better than students who took the test in French. The authors conclude that while it is possible for children who are taught in an L2 to perform well on tests, it is not guaranteed. As with any content teaching, the methods of teaching affect results as well.

- Turnbull, M., S. Lapkin and D. Hart. (2001). "Grade Three Immersion Students' Performance in Literacy and Mathematics: Province-wide Results from Ontario (1998–99)."

  This study found that Grade 3 students who were taught mathematics in French (L2), in an immersion program, performed indistinguishably from students who were taught mathematics in English (L1). Performance of immersion students was the same whether they were tested in French or in English. Scores of immersion students on tests of reading and writing were below the range of those in the regular program. This is consistent with findings of earlier studies, which have shown that French immersion students have a lag in English literacy skills until the start of English Language Arts in their curriculum.

- Turnbull, M., D. Hart and S. Lapkin. (2003). "Grade 6 French Immersion Students' Performance on Large-scale Reading, Writing, and Mathematics Tests: Building Explanations."

  This study found that Grade 6 students who were taught mathematics in French outperformed non-immersion students. The immersion students were tested in English for the most part. The study also found that the immersion students outperformed the students in the regular program in reading and writing, even though these tests were administered in English. Just over half of the regular students achieved reading levels of 3 or 4, while over 70% of immersion students achieved this level. Level 3 indicates a high level of achievement and is the provincial standard. Level 4 exceeds the provincial standard as measured by the Education Quality and Accountability Office (EQAO) tests. On writing tests, 51% of regular students obtained Level 3 or 4 while 66% of immersion students did.

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- Armstrong, P. W. and J. D. Rogers. (1997). "Basic Skills Revisited: The Effects of Foreign Language Instruction on Reading, Math and Language Arts."

  Two classes of Grade 3 students received 90 minutes per week of Spanish L2 instruction over the course of a term. Experimental groups were compared with similar-ability Grade 3 classes in the same schools. After one term, L2 instruction had a significant positive correlation with scores in mathematics and language as measured by the Metropolitan Achievement Test, Seventh Edition. These gains were independent of any effects of IQ or other measures. This was true even when time was taken away from the mathematics curriculum for Spanish instruction. No significant differences were found in the reading scores of students in the experimental and control groups. The teaching methodology employed concentrated on aural comprehension (Natural Approach, Total Physical Response). There was no specific instruction in reading or writing.

- Saunders, C. (1998). "The Effect of the Study of a Foreign Language in the Elementary School on Scores on the Iowa Tests of Basic Skills and an Analysis of Student-placement Attitudes and Abilities."

  This study found that Grade 3 students who had studied an L2 had significantly higher scores on the mathematics subtest of the Iowa Tests of Basic Skills than students who did not take an L2. Reading scores of students who studied an L2 showed an increase in aggregated scores over the scores of L1 students, but the increase was not statistically significant. The author concludes that L2 study does not interfere with basic skills, and may even be a factor in improved test scores.

- de Jabrun, P. (1997). "Academic Achievement in Late Partial Immersion French."

  This study looked at late partial French immersion in Australia. Year 8 students received 6 weeks of intensive language training at the beginning of the year, and were selected for the program on the basis of motivation, interest in and aptitude for language learning. The study was based on comparisons of test scores, using both standardized and regular classroom assessment. Students in late partial French immersion performed at levels comparable to the (L1-instructed) control group in mathematics and science courses. Some initial drops in science achievement were noted in the immersion group, but by the end of the academic year, the differences between these students and the control group were negligible.

Literacy

- Francis, N. (2000). "The Shared Conceptual System and Language Processing in Bilingual Children: Findings from Literacy Assessment in Spanish and Náhuatl."

  This author argues that literacy skills acquired in the societally dominant language (Spanish) can be transferred to the minority language (Náhuatl). The study on which the author reports found that children in Central Mexico could speak Náhuatl but had no opportunity to read or write it. For these children, the L2 was used less frequently than the L1. By Grade 5,

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universal bilingual conversational proficiency was normal. However, Spanish was the vehicle of academic discourse in the school and all literacy teaching was done in Spanish. Four classes of bilingual students in grades 3 and 5 participated in literacy assessments. There were two types of tasks: a cloze test in Spanish and Náhuatl, and a story closure writing task. The cloze scores for Náhuatl were lower than for Spanish, but the narrative scores for Náhuatl were higher than for Spanish, in spite of instruction having been in Spanish. In both tests, Náhuatl scores improved significantly from Grade 3 to Grade 5. The author concludes that the students were able to transfer what they were being taught in Spanish to their skills in Náhuatl.

- Cunningham, T. H. and C. R. Graham. (2000). "Increasing Native English Vocabulary Recognition Through Spanish Immersion: Cognate Transfer from Foreign to First Language."

  Effects of Spanish immersion on children's English (L1) vocabulary were studied. Thirty immersion students in Grades 5 and 6 and thirty English monolinguals (matched on grade, sex, and verbal scores on a Grade 4 Cognitive Abilities Test) did 60 Peabody Picture Vocabulary Test (PPVT) items. Both groups also did a 20-item Spanish/English cognate test created by the authors, which required that they recognize low-frequency English words with high-frequency Spanish cognates, and a picture identification task which determined whether they could recognize pictures of the relevant vocabulary items. Some examples are edifice, dormant, salutation, portal, verdant, illumination, aviation, comestibles, arbor, solar, vitreous, aqueduct, corridor, scribe, labial, amicable, carnivore, repose, infirm and cantor. The immersion students completed this test in both English and Spanish. The immersion students significantly outperformed the monolinguals on the PPVT test.

- Tabor, K. (1987). "The Relationship of Reading Scores to Participation in a FLES Program."

  This author sought to discover whether participation in an elective Foreign Language in the Elementary School (FLES) program in Grade 6 had an effect on L1 reading scores. The study found that students who participated in the FLES program did not have significantly higher reading scores than those who did not participate in the program. Students of above-average intelligence who chose to participate in the FLES program did not score significantly higher than those who did not participate. However, students of below-average intelligence who chose to participate in the FLES program showed significantly greater improvement in their reading scores than those who did not participate.

- Kennedy, T. (1998). "FLES: An Elementary School Spanish Program and Its Effects on Cognitive and Attitudinal Development."

  This study looked at the effects of a one-year content-based FLES program on Grade 3 students. Students who participated in the FLES program demonstrated more positive attitudes than those who did not participate. No difference was found in the students' achievement as measured by the Iowa Test of Basic Skills. The author concludes that participation in an L2 program does not impede the development of other skills.

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- Masciantonio, R. (1977). "Tangible Benefits of the Study of Latin: A Review of the Research."

  This paper provides a summary of studies contending that learning Latin has a positive influence on the development of English vocabulary.

  In 1971, Philadelphia instituted a program where 4000 students in Grades 4, 5 and 6 received 15 to 20 minutes of daily Latin instruction. "Performance of Latin pupils on the Iowa Vocabulary subtest was one full year higher than the performance of matched control pupils" (p. 337).

  In 1973, 400 Grade 6 students in Indianapolis received 30 minutes of instruction in Latin per day. A study found that:

  > At the end of the first year… the experimental group showed… a gain over the control group on the following subtests of the intermediate battery of the Metropolitan Achievement Test: (1) eight months on word Knowledge, (2) one year in Reading, (3) one year and one month in Language, (4) four months in Spelling, (5) seven months in Math Computation, (6) eight months in Math Concepts, (7) nine months in Math problem solving, (8) five months in Science, (9) seven months in Social Studies. (p. 377.)

  In 1970, 352 high school students who had studied Latin for an unspecified length of time in Erie Country Pennsylvania were matched by IQ and grade level with students who had not studied Latin. Those who had studied Latin had higher scores on the School and College Ability Test, the Scholastic Aptitude Test and the Nationwide English Vocabulary examination.

- Eddy, P. A. (1981). *The Effect of Foreign Language Study in High School on Verbal Ability as Measured by the Scholastic Aptitude Test–Verbal: Final Report.*

  This study found that students who had studied an L2 for longer periods of time did better on various SAT subtests, but most significantly on the subtest of English vocabulary knowledge.

- Marsh, H. W., K. T. Hau and C. K. Kong. (2000). "Late Immersion and Language of Instruction in Hong Kong High Schools: Achievement Growth in Language and Nonlanguage Subjects."

  This study found that students in Hong Kong who received instruction in both Chinese (L1) and English (L2) had stronger L1 skills. The study, which looked at late immersion, also found negative effects on performance in History, Geography and Science, all taught in the L2. These findings may well demonstrate the need for appropriate L2 proficiency and support before content learning begins in the L2.

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- Garfinkel, A. and K. E. Tabor. (1991). "Elementary School Foreign Languages and English Reading Achievement: A New View of the Relationship."

  This study undertook a comparison of students who did and did not extend Spanish (L2) instruction from grades 3–4 to grades 5–6. Spanish instruction in grades 3–4 was 40 minutes per week for 9 weeks; in grades 5–6 students took Spanish after school for 50 minutes (Grade 5) or 75 minutes (Grade 6). Students continuing to Grade 5 began instruction in Spanish reading, in addition to listening and speaking. English reading was measured at the end of Grade 6 using the Stanford Achievement Test. Within the low ability group (average students), those who received Spanish instruction did significantly better than those who did not. Differences in the high ability group were not significant.

- Bournot-Trites, M. and U. Tellowitz. (2002). *Report of Current Research on the Effects of Second Language Learning on First Language Literacy Skills.*

  This paper provides references to:
  - the research of James Cummins on models of bilingual proficiency
  - research on French immersion programs in Canada that reports on the language proficiency of the students
  - recent research on immersion students' achievement in non-linguistic domains.

  The authors conclude:

  > The effect of learning a second language (e.g., French) on first language skills has been virtually positive in all studies. Although most studies on the effect of second language learning on first language literacy have been done in the area of French immersion education, one can also apply the findings to Core French and intensive French programmes.
  >
  > The loss of instructional time in English in favour of the second language has never been shown to have negative effects on the achievement of the first language. Cummins' interdependence hypothesis, which maintains that language skills are being transferred from one language to the other, can be assumed to be true for the core French situation as well. One can confidently assume that cognitive abilities acquired in the learning of one language can be put to use in the acquisition and proficiency of the other language. In many studies first language skills were shown to be enhanced, even if instruction time in L1 was reduced in favour of L2 instruction. (p. 3.)

Minority Language Maintenance

Many of the studies discussed by Cummins and Swain (1986) show that acquiring an L2 has no negative impact on the L1. It is important to note that adding an L2 does not necessitate a loss or diminished capacity in the L1. There have been studies done on a number of language pairs, such as Navajo/English, Swedish/Finnish, English/Punjabi and English/Spanish.

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When students who speak a minority language are instructed in and maintain their L1, their levels of proficiency in English (their L2) improve. The Navajo students initially tested lower than their grade level in reading English, but eventually became more advanced than their monolingual English counterparts. Once again, these studies demonstrate that skills taught in one language transfer to another language. They also demonstrate that knowledge of an L2 can be an advantage.

French Immersion

Immersion usually involves individuals who speak a majority language (English in Alberta) being immersed in a minority language (such as French). There is little risk that they will lose their L1. How does learning an L2 in an immersion setting affect their L1?

Swain and Lapkin (1982) found that the English language skills of immersion students were better in some areas than those of students in English-only programs. Turnbull, Hart and Lapkin (2001, 2003) found that immersion students outperform regular students in literacy and mathematics.

Instructional Timing

Much of the above research focuses on individuals who have attained a higher level of bilingual proficiency than can be achieved by students in 95 hours per year. Research shows that minimal L2 proficiency will not have much effect on L1 structural knowledge, but may enhance L1 skills. The level of L2 proficiency is affected by the amount of time spent in learning the L2, but even small amounts of time can have positive results.

Some languages are more difficult to learn than others, depending on their linguistic distance from the student's L1, and therefore proficiency will take longer. It is to be expected that 95 hours of instruction per year will have different results depending on the language studied. The American Foreign Service Institute (FSI) has established a series of charts, reproduced below, that show the length of time required for students whose L1 is English to become proficient in various languages (Omaggio 1986).

The charts show results for students of varying "aptitudes." Aptitude is one theory of why some people are better than others at learning an L2. Other theories are that younger learners, or risk-takers, or musicians are better. Aptitude, a general cognitive trait, is reported to be a measurable entity and may be higher or lower in different areas. An individual may, for example, have superior mathematical aptitude but minimal spelling aptitude. The charts display varying results for students of minimal, average and superior aptitude. By including the charts, this report is not endorsing the aptitude model, but rather is illustrating the effects of different amounts of instructional hours for different languages.

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The charts divide languages into four levels, based on how difficult they are for students whose L1 is English. Class I languages require the fewest hours of instruction to attain a particular level of proficiency, while Class IV languages require the most hours of instruction. For example, the chart estimates that a student of average aptitude will require about 1320 hours of instruction to achieve an advanced level of proficiency in Japanese or Chinese, but only about 480 hours to achieve the same level of proficiency in French, Italian or Spanish.

In the following charts, the leftmost column indicates the number of hours of instruction, while the other three columns indicate the level of proficiency attained (1–3, with 3 being the highest) by students of varying levels of aptitude. The rows that are most applicable to the Alberta Languages Initiative are highlighted: 240 hours corresponds to approximately three years of instruction, while 480 hours corresponds to five years.

I. Afrikaans, Danish, Dutch, French, Haitian Creole, Italian, Norwegian, Portuguese, Romanian, Spanish, Swahili, Swedish

Length of Training	Minimum Aptitude	Average Aptitude	Superior Aptitude
240 hours	**1**	**1/1+**	**1+**
480 hours	1+	2	2+
720 hours	2	2+	3

II. Bulgarian, Dari, Farsi, German, Greek, Hindi, Indonesian, Malay, Urdu

Length of Training	Minimum Aptitude	Average Aptitude	Superior Aptitude
480 hours	**1**	**1/2+**	**1+/2**
720 hours	1+	2	2+/3
1320 hours	2/2+	2+/3	3/3+

III. Amharic, Bengali, Burmese, Czech, Finnish, Hebrew, Hungarian, Khmer, Lao, Nepali, Pilipino, Polish, Russian, Serbo-Croatian, Sinhala, Tamil, Thai, Turkish, Vietnamese

Length of Training	Minimum Aptitude	Average Aptitude	Superior Aptitude
480 hours	**1**	**1/2+**	**1+/2**
720 hours	1+	2	2+/3
1320 hours	2/2+	2+/3	3/3+

IV. Arabic, Chinese, Japanese, Korean

Length of Training	Minimum Aptitude	Average Aptitude	Superior Aptitude
480 hours	**0+**	**1**	**1**
720 hours	1	1+	1+
1320 hours	1+	2	2+
2400–2760 hours	2+	3	3+

Instructional Timing and Second Language Proficiency

While relatively few studies have tracked the L2 development of students in programs with limited time commitments, some significant findings have emerged from FLES classrooms in the United States of America. A good example of this comes from a school in Philadelphia where

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students began Japanese L2 instruction in Kindergarten for 15 minutes daily. Antonek et al. (1994) report that the students in the program made significant progress during the first two years of the program. By the end of the second year, they had acquired rudimentary rules of Japanese syntax and were beginning to elaborate their own novel utterances beyond the one-word level. Donato et al. (2000) report continuing progress, though by the end of Grade 5 the majority of the students continued to perform at the novice level in oral language skills. In particular, while the students had been successful in mastering discrete vocabulary and functional expressions, creative elaboration of productions remained a challenge, likely due in part to the lack of opportunities for such language use in the classroom. Interestingly, there was a significant positive correlation between attitude toward Japanese L2 learning and achievement on the proficiency test.

Chinen et al. (2003) report on the continued L2 achievement of middle-school students in a program where the schedule was altered such that students received 40 minutes of Japanese L2 instruction each day for 12 weeks per year. Under this system, within one year continuing students made significant progress in their reading of Japanese kanji characters in isolation, despite the relatively limited amount of time devoted to such instruction. However, Grade 8 students reported more negative attitudes toward the learning of Japanese than their younger peers. Their own attitudes were also less positive than in earlier years, despite their continuing progress in literacy skills. Consequently, the authors point to the need for instruction to evolve over the years to remain developmentally appropriate for all learners.

Students can make significant progress in L2 skills with as little as 15 minutes of L2 instruction daily. However, the areas in which progress is made are dependent upon the nature of the instruction. It is therefore important that the teaching approach be varied and allow opportunities for the development of creative language skills. Furthermore, in order to help maintain student motivation, instruction must evolve as the age and proficiency level of the students increases.

Intensive French

Interest in programs such as Intensive French has grown significantly, largely due to concern over the fact that students in L2 programs with limited time commitments frequently do not develop advanced levels of communicative competence in the L2. Intensive L2 programming aims to improve students' creative abilities in the L2 by providing them with a concentrated amount of time devoted specifically to learning the L2. Netten and Germain (2004b) identify five key characteristics of these programs, as implemented in Newfoundland and Labrador:

1) more than 100 hours of instruction per year
2) concentration of time devoted to learning the L2
3) concentration on learning the L2, not other subject matter
4) focus on communication, not analytical language study
5) focus on the development of both fluency and accuracy.

Content-area outcomes are not targeted during the time of the Intensive French program, but grade-appropriate cognitive and literacy skills are actively developed. These skills are then

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integrated into the L1-medium content instruction, which is compacted into the second term. For example, students might learn the skills and procedures associated with process writing during the intensive L2 term, and then use these actively in English Language Arts later in the year (Netten and Germain 2004a).

Intensive French programs have proven successful in enabling students to develop communicative language skills, often in excess of what might be predicted based solely on the number of hours devoted to the program. In an analysis of the oral language skills of Grade 6 students from 23 classes that had participated in a 5-month Intensive French program, Germain, Netten and Movassat (2004) report that by the end of the term, students were able to engage in and maintain general conversations and communicate with significant creativity and spontaneity. The written language skills of the same students, as reported by Germain, Netten and Séguin (2004), also showed significant improvement. By the end of the 5 months in the program, the students were, on average, able to write compositions at a level equivalent to that of Grade 3 Québec francophone students. While the precise number of hours devoted to the Intensive French program (which ranged from 141 to 372 hours) had some influence on the level of writing proficiency developed by the students, the authors identify the most crucial factor in the program's success as being the teaching methodologies employed by the different teachers. Drawing on immersion research, Genesee (1987) also suggests that the quality and intensity of L2 exposure is more crucial in the development of linguistic competence than is the raw number of hours devoted to L2 instruction.

Intensive French programs have also been found to have positive effects on students' attitudes toward the L2. For example, Peters, MacFarlane and Wesche (2004) report that grades 5 and 6 students who spent half of their school day for one year in an Intensive French classroom expressed more positive attitudes toward learning French and a desire to enter late immersion programs. As well, the students indicated increased confidence in their ability to communicate in French. Germain and Netten (2004) report similar positive attitudes among students, teachers, parents and administrators involved with the Intensive French program in Newfoundland and Labrador.

Periods of intensive exposure to a second language within the context of a regular core-style L2 program can have significant positive impacts on student proficiency levels and attitudes. Furthermore, general cognitive skills and learning strategies developed in the L2 during intensive programs can be successfully transferred to the L1 and applied to content-area learning.

- Lapkin, S., D. Hart and B. Harley. (1998). "Case Study of Compact Core French Models: Attitudes and Achievement."

  This study looked at core French in Ontario. 120 hours of instruction per year were mandated for core French from Grade 4 to Grade 9. The program was generally delivered in 40-minute periods. The study compared the results of offering 40 minutes a day for 10 months with (a) offering 80 minutes a day for 5 months and (b) offering half days of instruction for 10 weeks. The purpose of the study was to determine whether concentrating classroom time in core French would produce improved French language outcomes. In this

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study, the same teacher taught all three classes using the same materials. Pre-test scores between the three groups were not significantly different. The results showed that students in the half-day classes did better than the students in the 40-minute program in reading and writing. Differences in listening and speaking were not significant. There was no significant difference between the performance of the students in the 80-minute class and the 40-minute class in speaking, listening or writing, but the 80-minute class outperformed the 40-minute class in reading. Overall, students in both the half-day and 80-minute classes made significant gains on five out of six French test measures, while students in the 40-minute classes made significant gains on only two out of six measures.

- Netten, J. and C. Germain. (2004b). "Theoretical and Research Foundations of Intensive French."

  These authors note that Intensive French programs were developed in response to the observation that students in core French programs frequently do not develop highly advanced communicative L2 skills (accuracy and fluency). Under an Intensive French model, time allotments for other curricular areas are normally compacted, such that content matter outcomes are only focused upon during the second half of the year (less time is devoted to areas such as ELA, science and social studies). This is based on the beliefs that cognitive development is not subject-specific and that languages are interdependent.

- Netten, J. and C. Germain. (2004a). "Developing the Curriculum for Intensive French."

  This study reports that content-area outcomes are not targeted to be met during an Intensive French program; instead, Intensive French programs aim to develop grade-appropriate cognitive skills that can be transferred to the other content areas. For example, language arts outcomes and skills (e.g., process writing) are developed in the L2, to be transferred to the L1. This type of integrated focus enables the regular curriculum to be compacted in the second term, and enables content-area outcomes to be addressed in less time than usual.

- Germain, C., J. Netten and P. Movassat. (2004). "L'évaluation de la production orale en français intensif: critères et résultats."

  This is an analysis of the oral language skills of 23 classes of Grade 6 students that participated in a 5-month Intensive French program. The study was conducted from 1998–2001 in Newfoundland and Labrador. At the end of the 5 months, students were able to engage in and maintain general conversations, and communicate with significant creativity and spontaneity. Results obtained were superior to those predicted by the researchers and better than those generally obtained by students in regular core French programs. The precise number of hours accorded to Intensive French study (which ranged from 141 to 372) was not correlated with the levels of oral proficiency achieved by the students; the authors attribute differences in oral achievement to the teaching methodologies employed by the different teachers.

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- Germain, C., J. Netten and S. P. Séguin. (2004). "L'évaluation de la production écrite en français intensif: critères et résultats."

  This is an analysis of the written language skills of 23 classes of Grade 6 students that participated in a 5-month Intensive French program. The study was conducted from 1998–2001 in Newfoundland and Labrador. At the end of the 5 months, students were able to write compositions at a level equivalent to that of Grade 3 francophone students in Québec. Notably, the students performed best on those criteria that those were more closely tied to fluency (e.g., textual organization); the authors attribute this to positive L1 skill transfer. Achievement in grammatical accuracy was considerably more variable, with some aspects being well mastered and others continuing to pose significant challenges for students. As well, it is worth noting that over the 3 years of the study, the quality of the students' written work increased significantly. The number of hours devoted to the Intensive French program was significantly correlated with levels of written proficiency (particularly on measures of fluency), with students who received at least 250 hours of L2 instruction performing at levels significantly above those of students receiving fewer than 250 hours. Hours of instruction, however, were not the sole determining factor in students' levels of written proficiency. Balance between accuracy and fluency in written work was found to be attainable in an Intensive French program, though the actual attainment of such a balance depended on teaching approaches.

- Peters, M., A. MacFarlane and M. Wesche. (2004). "Le régime pédagogique du français intensif à Ottawa: le bain linguistique."

  Grades 5 and 6 students in Ottawa spent half of their school day for one year in an Intensive French program; interview responses of students in this program (two cohorts, 1993–94 and 1995–96) and students in regular core French are reported in this paper. Students in the Intensive French program demonstrated more positive attitudes toward learning French and a desire to enter late immersion programs. As well, they indicated increased confidence in their ability to communicate in French. It should be noted that students in this program were self-nominated and participation in the Intensive French program was not mandatory, factors that may have influenced the results significantly.

- Germain, C. and J. Netten. (2004). "Étude qualitative de régime pédagogique du français intensif."

  These authors conducted interviews with a range of individuals involved in the Intensive French program in Newfoundland and Labrador. Teachers and administrators reported that students in the Intensive French program attained levels of French proficiency significantly higher than do students in core French. No negative effects on content-matter learning or English skills were reported by the teachers; rather, positive transfer of general language skills developed in French was noted.

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II. The Role of Content Instruction in Offering a Second Language (L2)

- Numerous models of content-based language programs exist, each illustrating a different balance between content-area and second-language learning outcomes. Student second-language proficiency levels, the nature of the content material and the amount of time devoted to the program all need to be considered in choosing an appropriate model for any given context.
- Students in time-intensive content-based language teaching (CBLT) programs, such as French immersion, are typically able to master complex content material effectively, despite less than native-like proficiency in the language of instruction.
- In programs where students have limited second-language proficiency and less time is devoted to second-language learning, the concrete and highly-contextualized content found in content-based language teaching programs is the most effective method of teaching.
- In terms of language learning, content-based language teaching is a time-efficient and effective way of promoting the development of general second-language skills.
- The development of second-language grammatical accuracy needs to be explicitly promoted in content-based language teaching classrooms. This can be accomplished through the integrated teaching of language structures and vocabulary.
- Ultimately, one of the main benefits of content-based language teaching is its ability to encourage students to make connections between second-language study and the outside world. This, in turn, can increase motivation and reinforce learning across the curriculum.

Introduction

Given the demonstrated benefits of L2 learning (see Section I of this report), it is not surprising that the integration of L2 instruction into elementary and secondary school programs has attracted considerable attention. At the same time, those who have endeavoured to implement such programs have often been faced with the dilemma of how to maximize the students' amount of exposure to the L2 without overly detracting from the amount of time devoted to other curricular areas. The integration of L2 and content instruction, or content-based language teaching (CBLT), seems to offer at least a partial solution to this problem.

Marguerite Snow, a noted expert in the field, defines CBLT as "the concurrent study of language and subject matter, with the form and sequence of language presentation dictated by, or, at least, influenced by content material" (1999, p. 462).

In Canada, the best-known CBLT programs at the elementary and secondary levels have been French immersion and bilingual education programs, though these are by no means the only contexts in which the insights of CBLT can be applied. Indeed, the model has been actively used

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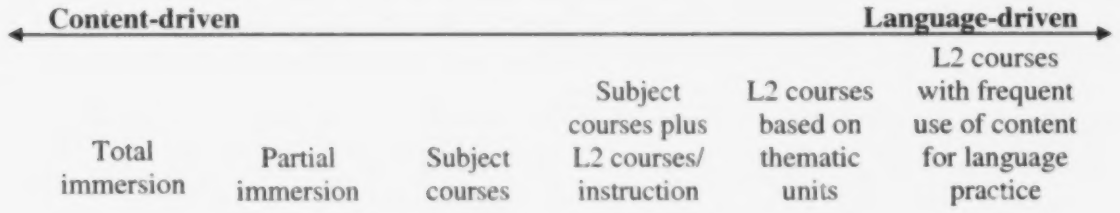
in English as a Second Language (ESL) and L2 classrooms at both the K–12 and postsecondary levels in Canada and elsewhere.

The following sections will review the recent literature in the field of CBLT. First, influential models of CBLT will be presented. This will be followed by a discussion of the results of empirical studies that have addressed the learning of content and the development of L2 skills in CBLT contexts. Finally, other attested benefits of CBLT approaches will be addressed.

Models of Content-based Language Teaching

Met (1998) identifies a continuum of approaches to CBLT, ranging from those where content is the primary organizational framework to those where the structure of the L2 itself acts as the driving force. This variety of possibilities is illustrated in the diagram below (reproduced from Met 1998: 41).



As shown above, total immersion programs are the CBLT context in which content plays the most important organizational role. This stems from the fact that in immersion classrooms, teachers typically structure units around the outcomes of the mathematics, science, social studies or other content-area programs of study. Outside of the immersion language arts period, any specific language instruction that occurs is based on the particular linguistic demands of the content areas. It is therefore content, rather than language, that drives the instructional organization of such classrooms.

At the other end of the continuum are more traditional L2 classrooms, where content is used simply to supplement formal L2 instruction. For example, if students were studying the language structures used in expressing opinions, analytic and functional language study might be supplemented with a project in which students researched a science theme, such as cloning, and wrote letters to the editor expressing their opinions on the topic. In such classrooms, content-area outcomes do not act as a driving or unifying force. Indeed, the choice of themes utilized is often largely divorced from the content-area programs of study. It is the L2 outcomes alone that are used to organize instruction.

Brinton et al. (1989) identify a similar range of CBLT models. In this case, however, the authors conceptualize the continuum as one that delineates the space between the more traditional L2 classroom, in which students have little opportunity to interact with native speakers of the L2, and the mainstream classroom, where students are fully integrated into an L2 content classroom. This is illustrated below (adapted from Brinton et al. 1989, pp. 21–23).

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Mainstream class ← → **Language class**

Adjunct Model – high intermediate to advanced L2 students are integrated into mainstream content courses in the L2; L2 students receive additional language instruction focusing on content-specific language skills	**Sheltered Model** – intermediate to high intermediate L2 courses (for L2 learners only) use content course syllabi and may integrate study skills	**Theme-Based Model** – beginner to advanced L2 students study the language through theme-based curricular units that integrate all of the language modalities

In Alberta, the most common manifestations of Brinton et al.'s adjunct CBLT model are found in ESL programs where students are gradually integrated into the mainstream English-language program. Few opportunities exist for members of the majority language group (English in Alberta) to participate in adjunct-model L2 programming. This stems from the fact that there are relatively few content programs targeted at speakers of other languages into which L2 learners could be integrated. On the other hand, Brinton et al.'s sheltered model, where a relatively homogeneous group of L2 learners receives content instruction in the L2, closely resembles the situation in Alberta immersion classrooms.

Theme-based models are the CBLT structures most commonly associated with L2 classrooms where less time is devoted to L2 study than in immersion. In such classrooms, instruction related to L2 outcomes is integrated into a series of thematic units, such as "Media" or "The Environment," which may or may not be related to other content-area curricular outcomes. The main focus of such instruction remains on the language itself, and assessment reflects this. This approach has a number of benefits, including its amenability for use with students at even relatively low proficiency levels and the relative ease with which content-based thematic units can be integrated into more traditional L2 classrooms (Stryker and Leaver 1997).

Theme-based CBLT, which can be used even with beginning students, is likely the model that could be most easily implemented in Alberta, given 95 hours of L2 instruction per year under the Languages Initiative.

Content Learning in Content-based Language Classrooms

Content outcome mastery is not necessarily a serious concern in theme-based L2 classrooms where content is used primarily to supplement L2 instruction. When subject-area outcomes are targeted solely through the L2 in CBLT programs, however, the importance of content mastery increases significantly. In consequence, immersion programs, which teach core content areas through the medium of the L2, have been the subject of numerous studies addressing this issue.

In general, results from Canadian studies of immersion programs have found that on standardized tests given in English, immersion students receive content achievement scores comparable to their peers in mainstream English programs. Representative of such research, Turnbull, Lapkin and Hart (2001) found that Grade 3 students in early French immersion

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programs attained levels of mathematics achievement indistinguishable from those of their English-program peers on the Ontario provincial standardized tests. Furthermore, Turnbull, Hart and Lapkin (2003) found that older early French immersion students actually outperformed English-program students in mathematics on the Grade 6 version of the same test. However, in a comparative study of Grade 5 students in early immersion, delayed immersion and all-French school programs, Genesee et al. (1989), found no significant differences between any of the groups on measures of mathematics achievement.

Such positive demonstrations of content mastery among immersion populations have also been attested in other countries, as illustrated by, for example, de Jabrun (1997) in a study of late partial French immersion students in Australia. Despite initial drops in science achievement among the Grade 8 beginning immersion group, by the end of their first year in the program students were performing at levels comparable to the L1-instructed control group in both mathematics and science courses. Notably, the immersion students received 6 weeks of intensive L2 training at the beginning of the year, and were selected for the program on the basis of motivation, interest and aptitude for L2 learning. These factors may have influenced their rapid adjustment to the learning of abstract content matter through the medium of the L2.

In studying younger students, Holobow et al. (1991) found that Grade 1 students in partial French immersion performed in English and mathematics at levels equal to the control group, which was taught in English. This was true of working class and black children, who also had to master a second English dialect, as well as of middle-class and white children. Significant differences between the socioeconomic and ethnic groups were found, but these were independent of the language of instruction. A broad range of immersion students, therefore, were found to be capable of mastering content material in an L2 immersion program.

Considerable evidence exists to support the contention that students can successfully master content-area outcomes through immersion-style CBLT. Indeed, it would seem that "native-like competence in the language of instruction is not absolutely necessary for age-appropriate academic development" (Genesee et al. 1989, p. 262).

Despite the generally positive results for content mastery in immersion programs, there is some indication that immersion-style CBLT is not always successful in L2 contexts. Most notably, Marsh et al. (2000), in a study of late-English immersion students in Hong Kong, found significant negative correlations between attendance at an English-language school and achievement in history, geography and science. Achievement in mathematics was not significantly negatively affected. On the other hand, at schools where students received more intensive formal English instruction, the negative effects of content instruction in English were largely offset. It is also worth noting that all three of the negatively-affected content areas were relatively new to Grade 7 students when they entered the program, perhaps contributing to the difficulty of learning these subjects in English. As well, students with initially stronger English language skills had less of a disadvantage than other students in the English-language schools.

Johnson (1997) provides some insight into these findings, noting that language mixing predominates in many Hong Kong "English-language" content-area courses, such that students rarely engage in extended creative exchanges in English in the classroom. Indeed, interpersonal

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exchanges and many explanations frequently occur in Cantonese, while interaction in English occurs only when mediated by the textbook. According to Johnson, "the quantity and quality of input required for effective acquisition are not being achieved" (1997, p. 184). Thus, it appears that without adequate L2 support, the acquisition of complex content matter through the medium of an L2 may be jeopardized.

Given these results, it is worth noting Met's (1998) suggestion that when implementing CBLT for students with limited levels of L2 proficiency, it is preferable to select content that lends itself to concrete experience. This stems from the recognition that such content material is more immediate and contextualized, making it both easier to process and more likely to serve as meaningful input for language learning. Notably, content curricula for very young students (Kindergarten, Grade 1) are particularly concrete and typically lend themselves well to CBLT. It is thus not surprising that both Weber and Tardif (1991) and Pelletier (1998) found that students in early French immersion Kindergarten classrooms, where the content curriculum and teaching methods are largely concrete, did as well as their peers in regular English classrooms in terms of their understanding of school material and procedures. This is despite the fact that the students in those programs typically began school without knowing any of the L2.

Given 95 hours of language instruction per year, it is unlikely that students will quickly attain the levels of L2 proficiency necessary for successful content mastery in highly abstract curricular areas such as science and history. This is particularly true if these subjects are taught in a traditional, teacher-centred manner and insufficient L2 support is available. On the other hand, content areas that are more concrete and contextualized, such as physical education or visual art, may provide an effective basis for CBLT.

Language Learning in Content-based Language Classrooms

Numerous studies have compared the levels of language proficiency attained by students in content-based and traditional L2 programs. As might be expected, immersion programs that devote a significant amount of time to instruction in the L2 (usually more than 50% of the school day) have been found to lead to levels of L2 proficiency superior to those attained by students in L2 programs with more limited time commitments (e.g., Stevens 1976, Genesee 1987). On the other hand, studies comparing time-matched programs have also generally noted more positive L2 learning outcomes in CBLT classrooms when compared to those employing traditional L2 methodology.

In one such study, Leaver (1997) compared the ultimate L2 attainment of adult L2 students in the intensive American Foreign Service Institute Russian program using content-based and traditional approaches. The study found that more than 83% of students in the CBLT program, where content focused on such areas as Russian culture, diplomacy, history and geography, achieved advanced levels of proficiency. In contrast, only 52% of students in cohorts that received more traditional L2 training attained equally advanced levels. In this case, the CBLT program quickly integrated more Russian language into the cultural content material over the first weeks of the program, and students continued to receive notional-functional instruction. Eventually, virtually all instruction occurred in Russian.

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Stevens (1976) also notes positive L2 learning results stemming from CBLT programs. Her study compared Grade 7 late immersion students in an activity-centred program that occupied 50–55% of the school day to equivalent students in a teacher-centred immersion program where 85% of the day was spent in L2 learning. Students in the activity-centred immersion program, which included a significant theme-based component, performed at levels only slightly below those of students in the more traditional teacher-centred immersion program, despite the fact that they spent only approximately 60% as much time in the L2 as those in the teacher-centred program. Stevens therefore concludes that with respect to language learning, "activity-centred learning is more economical of time than teacher-centred instruction" (160).

Wesche (1993) reports similar findings with respect to advanced students in the University of Ottawa's adjunct CBLT courses where students, in addition to receiving specific content-based L2 support, were integrated into L2 content-area courses with native speakers. Students in this CBLT program were consistently found to make L2 proficiency gains comparable to those of students in regular skills-based L2 courses, despite the fact that the CBLT students had fewer hours of language instruction. Such gains were particularly notable in reading, speaking and listening skills, as well as in measures of confidence, such as willingness to use the L2 outside of class. In addition, content matter results were equal to those of students taught in their L1.

Further to these observations, Musumeci (1993) argues that L2 content instruction provides a crucial context for the development of a wide range of language functions and structural features, particularly those related to the written modality and more formal registers of language. By providing guidance and instruction to enable students to access and comprehend complex, authentic L2 content-area texts, CBLT classrooms provide students with important input which they might not otherwise encounter. This, in turn, enables students to make substantial gains in linguistic competence while at the same time learning content matter. CBLT is thus an effective context for the acquisition of L2 skills.

CBLT, which aims to embed L2 learning within a meaningful context, has typically been demonstrated to be an efficient means of encouraging the development of L2 skills.

While CBLT has been shown to be effective in the development of L2 skills, grammatical accuracy does not always progress at the same rate as fluency or other global language abilities. Wesche (1993) echoes numerous other researchers in stating that "experientially focused content teaching in the target language serves well for the development of global listening and reading skills, and for learning to communicate effectively, *if not always accurately*, through speaking and writing" (74, emphasis added). She concludes that within the CBLT classroom, specific attention must be focused on the formal properties of the L2 if maximal levels of linguistic accuracy are to be developed.

This point of view is reiterated by Swain (1988, 1996) who notes in observations of elementary and middle-school immersion classes that the range of language functions employed by teachers and students during content instruction is typically quite limited. Additionally, students often receive relatively little feedback about the formal accuracy of their spoken productions. Indeed, in a study of Grade 6 French immersion classes, it was found that only 19% of students' errors were corrected by the teacher either explicitly or implicitly (Swain 1988). Such patterns of

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interaction have the consequence of limiting the accurate and representative L2 input to which students are exposed, potentially leading students to incomplete or erroneous understandings of the language. The role of the teacher, then, must be "to help learners undertake the sort of form-function analysis needed to be effective and accurate communicators in their second language" (Swain 1988: 73). Content instruction alone, without awareness of the formal elements of the L2, may not be adequate to achieve such accuracy goals. Rather, a focus on linguistic accuracy must be overtly present in CBLT classrooms.

LaPlante has conducted considerable work in the area of content and language integration in the CBLT classroom. Significantly, he found, in a study of Grade 6 French immersion science classes (LaPlante 2000), that explicit instruction in language functions enabled students to internalize elements of linguistic structure and discourse specific to the content discipline and to make active use of these in written text. Still, even with this focused instruction, many grammatical errors remained in the students' science writing, suggesting that even more form-focused instruction integrated into the content unit could have been beneficial.

Similarly, Day and Shapson (1991), in studying Grade 7 early French immersion students, found that form-focused curricular intervention resulted in significant improvement in students' linguistic accuracy. Specifically, by targeting the conditional structure and integrating formal/analytic, functional and communicative approaches to L2 teaching, the researchers were successful in improving the written use of the target structure. This was particularly notable when students in the experimental group were compared to a control group of students who did not receive such focused instruction. Some gains were also found in the use of the target structure in the oral language of the students in the experimental group, but these were not significant when compared to the control.

Further demonstrating the effectiveness of integrated formal L2 instruction, Short (1994), in observing middle-school ESL social studies classes, found that students who were explicitly taught key words and syntactic structures common to content texts were better able to understand content concepts and the relationships between them. Teacher modelling and the use of key visuals were particularly effective strategies in such integrated CBLT. Further to this, and working with a similar group of students, Short (1997) again identified the need to explicitly teach vocabulary, textual cues and text structures specific to the target subject area. In addition, she found that instruction in content-specific vocabulary, textual cues and text structures with the specific aim of improving reading comprehension was effectively transferred to students' writing. The use of graphic organizers was again noted to be particularly helpful in this regard. The use of key visuals as effective tools in mediating the interaction of form/function and content is further emphasized by Early (1991) and Early and Tang (1991). These studies of ESL students in Vancouver identified positive results from using the Knowledge Framework, an approach which makes explicit the connections between content, textual structure and language functions (Early et al. 1986). The effectiveness of this specific kind of integration is further supported by Huang's (2003) ethnographic study of a Grade 3 theme-based Mandarin L2 program where students received only 2 hours of L2 instruction per week. In this study, the Knowledge Framework was primarily employed by the teacher in the planning and implementation of the program, and students were not explicitly aware of the target knowledge or language structures. Still, the use of the key visuals and other tools associated with the

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approach successfully facilitated the students' level of content understanding and tendency to make form-function connections.

Linguistic accuracy has at times been a concern in CBLT programs. However, such skills can be improved among students in CBLT programs by making explicit connections between content and language structures. The use of key visuals and integrated formal instruction has been demonstrated to be effective in encouraging such connections.

Active participation of CBLT students in their own L2 learning processes has also, not surprisingly, been shown to be important in the acquisition of content-area-specific syntactic, semantic and discourse functions. For example, in a study of ESL students in English-language science courses, Gibbons (2003) found that when teachers provided targeted content vocabulary and structures, students were able to draw on this input and progress toward more "scientific" language. Mohan and Beckett (2001), in discussing advanced university-level content-based ESL, emphasize that both students and teachers should be active participants in the scaffolding of language and the development of more "advanced" forms of the L2.

Similarly, Swain (2001) contends, in a study of French immersion students in grades 7 and 8, that creative L2 output by students is necessary to promote the development of linguistic accuracy. In particular, she suggests that such output enables learners to move toward greater grammatical proficiency by encouraging them to notice areas needing development and providing a forum for hypothesis testing and the use of metalinguistic talk. In her study, she found that collaborative writing activities were particularly effective in focusing students' attention on meaningful forms, leading to linguistic problem solving. In a study of early French immersion students in Grade 8, Kowal and Swain (1997) found that dictogloss and cloze tasks were similarly effective in encouraging students to focus on form and, especially in the case of the cloze task, form-function connections. Still, students maintained some misconceptions and formed occasional false hypotheses that required further corrective feedback from the teacher. Deen and Hacquebord (2001) found similar patterns in their study of minority-language students in a mainstream early secondary Dutch mathematics classroom. There, a lack of opportunities for students to create their own comprehensible output and a lack of direct focus on form resulted in some maintained misunderstandings about the L2.

As pointed out by Wesche (1993), comprehensible content instruction is not L2 teaching in and of itself. Teachers need to implement instructional modifications that take into account learners' language proficiency, background in the content and need for formal language feedback. Students need to be actively involved in their own L2 development by testing grammatical hypotheses and seeking out comprehensible input.

Intensive Core French

Intensive French is an enrichment of the regular core French (L2) program through the creation of a period of intensive exposure to French. Students receive three or four times more hours of French instruction than they do within a normal core French program. The increased amount of time devoted to L2 learning, as well as the concentration of instructional time (for example, with

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all of the French instruction occurring within the first 4 or 5 months of the academic year), allows the following: enrichment of the curriculum, change in the L2 methodology used by the teachers and compacting of the regular curriculum. For example, in the pilot study conducted in Newfoundland and Labrador reported by Netten and Germain (1999), English Language Arts, Social Studies, Science, Health, Religion, Music and Physical Education were compacted. The time devoted to mathematics remained constant. At the end of the intensive period, students return to their regular curriculum in English, including the usual number of hours in French. Netten and Germain (1999) conclude that:

> ... Intensive French seems to be a very effective way to develop communicative competence, including both fluency and accuracy. However, researchers still have many questions about the role of time, of teachers, of pedagogy used, of teachers' language competence and other related issues. Considerable data are still to be analyzed: teachers' journals, students' journals, recordings of classroom events (Carullo, 1999), etc. After one year of experimentation, Intensive French presents also an interesting new perspective on the different conditions under which French could be taught in Canada. In addition, it may have repercussions on the way regular core French can be taught: the four teachers involved during the first year of the project have already changed their approach in their core French classrooms. Above all, students seem to achieve much more than teachers have expected, both in language and in personal development.
>
> (Netten and Germain, http://www.unb.ca/slec/Events/Actes/Netten.html)

Further Rationale for Content-based Language Teaching

Given effective implementation, CBLT offers considerable promise for both subject matter and L2 learning. Numerous reasons for this success have been suggested by various authors. Primary among these is the authenticity that CBLT lends to L2 study. As expressed by Short (1991) in reference to students learning English as an L2 overseas, CBLT in the L2 classroom provides students with:

> meaningful and relevant material to round out their English lessons... In places where English is not needed for everyday communication or even for most careers, the EFL class may be not highly regarded by many students, but merely tolerated. Once English instruction provides the occasion for review and practice of selected information from the content courses, its stature may be raised in the eyes of those less enthusiastic, non-intrinsically motivated EFL students. (pp. 167–168.)

A similar principle holds for any L2 learning situation in which the L2 occupies a non-dominant position in the society.

Given that under the Alberta Languages Initiative students will be learning languages that are not dominant in the province, it may be difficult for some learners to perceive the value of such study. Integrating content-area outcomes or themes into the L2 classroom may serve to enhance the relevance of language study and increase students' motivation.

Met (1998) notes that CBLT combines well with a constructivist teaching approach, in which subject matter is organized according to themes or overarching questions to increase its

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authenticity. Content-based and constructivist teaching approaches both encourage students to make connections across disciplines and to engage in meaningful, authentic language use. Like constructivism, CBLT implies the integration of higher-order thinking skills into the L2 classroom. This encourages the generalization of L2 knowledge and skills to environments beyond the traditional language exercise (Snow et al. 1989, Swaffar 1993).

CBLT approaches, particularly those which follow a theme-based model, also have the benefit of being easily structured to place priority on the interests and needs of the learners as well as on future applications of L2 (Snow 1999). When learners are engaged they will spend a greater amount of time on task and, consequently, learning (Swaffar 1993). Of course, teacher-identified student needs are not always the topics of most interest to learners. As pointed out by Valentin and Repath-Martos (1997), students' own interests and perceptions of relevance must be taken into consideration; simply teaching an L2 through content is not sufficient to ensure student motivation. Teachers need to be aware of the actual needs and interests of their students.

CBLT, when organized around themes and questions of interest to students, has the potential to encourage the transfer of L2 skills to a wider range of contexts. This, in turn, helps students to understand the place of L2 competence within the world as a whole.

Finally, it is worth noting that devoting even a limited amount of school time to CBLT reinforces the content matter taught in the L1 (Snow 2001). As suggested by Snow et al. (1989) and reiterated by Snow (2001), models of theme-based elementary school L2 instruction can take advantage of L2 and content curricula outcomes that coincide and complement each other. Thus, for example, the L2 and content teachers might agree to align units dealing with "weather terms" in the L2 program of study and "meteorology" in the science program of study so that thematic instruction in the L1 and L2 serve to reinforce each other. This approach is also time-efficient, allowing outcomes in more than one subject area to be addressed simultaneously (Met 1998).

Given 95 hours of L2 instruction per year under the Alberta Languages Initiative, the collaboration of L2 and content teachers to construct mutually-reinforcing thematic units offers considerable potential. Such integration would serve to motivate students and provide them with relevant contexts to practise the L2.

Thus, for successful implementation of a CBLT program, it is crucial that both L2 and content teachers understand the rationale for the program and the ways in which it can be most effectively implemented. This includes an understanding of the methodology best suited to students of different ages, interests and levels of proficiency.

Summary

CBLT, a methodology that integrates content and language learning outcomes, can be implemented under a broad array of models ranging from total immersion to the supplementation of traditional L2 instruction with thematic material. As has been demonstrated repeatedly, students in intensive CBLT classrooms with significant time commitments, such as French immersion, can effectively master even abstract content material in the L2. On the other hand,

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students at lower proficiency levels or in classrooms where less time is devoted to L2 study normally experience greater success with concrete and contextualized content matter; such learners may struggle with highly abstract content unless significant L2 support is provided.

L2 skill development is, for the most part, effectively and efficiently promoted by CBLT. However, concern has been expressed about the development of grammatical accuracy in such programs. Content instruction through the medium of the L2 may not be effective L2 instruction in and of itself. In studies that look at various ways of addressing this issue, researchers emphasize the need for the active integration of formal L2 instruction into the CBLT classroom.

In the end, CLBT offers significant promise for both L2 and content learning. With careful and considered implementation, the integration of subject-area and L2 programs of study can help students to contextualize their L2 learning and make connections between L2 study and the greater world. This, in turn, can lead to improved motivation and, ultimately, to greater appreciation of the L2 and related cultures.

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III. The Effects of Second-language (L2) Learning on Students with Special Needs

- There is a great deal of research that looks at the difference between students who are culturally and linguistically diverse versus those with disabilities.
- A second body of research focuses on how to assess students with special needs in second-language classrooms. Various checklists are proposed to enable differentiation between students who are culturally and linguistically diverse and those with disabilities.
- A third body of research focuses on how to teach students with disabilities. Some research suggests adapting the second-language teaching by focusing on the analytical method of teaching the language. However, much of this research does not have an empirical basis.
- A fourth body of research explores a more cognitive framework. This research looks at how bilingual students with special needs perform word recognition tasks compared to monolingual students; how students with dyslexia perform in second language learning; language impairment in bilingual and monolingual students; and the connection between learning disabilities in first-language and second-language learning. Research on students with dyslexia attempts to learn more about their phonological system and the negative effect it has on their ability to deal with an alphabetic script that emphasizes phonological skills. In research on language impairment and word recognition, bilingual students with special needs have not been found to exhibit more profound deficits than their monolingual peers.
- In sum, all of this research looks at how to assess students in second-language classrooms; how to teach students with special needs in second-language classrooms; and problems related to specific concerns such as dyslexia, word recognition, learning disabilities and differences between learning a first language and learning a second language.

Culturally and Linguistically Diverse Students/Students with Special Needs

- Cummins, J. (1989). "A Theoretical Framework for Bilingual Special Education."

This article presents a theoretical framework that involves both a cause analysis of minority students' academic difficulties and an intervention model designed to reverse these difficulties. The framework does not make any distinction between "bilingual education" and "bilingual special education," nor does it assume the validity of categories such as "learning disability" and "mildly handicapped." In this article, the author is concerned with how to provide a rich pedagogical environment for minority students. Less emphasis is put on special education students. The author notes that:

> Academic activities associated with the most intensive and prolonged levels of task engagement drew heavily upon, and encouraged expression of, students' experiences, language background and interests. They also fostered feelings of success and pride in accomplishment, gave children a sense of control over their own learning, and included peer collaboration or peer approval. Furthermore they were holistic in nature in that they did not involve learning or drilling of

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> isolated, decontextualized segments of information… On the other hand, activities that presented decontextualized information in drill format were among those producing the lowest rate of task engagement and low success rates. (page 6.)

- Ortiz, A. (1997). "Learning Disabilities Occurring Concomitantly with Linguistic Differences."

  The author discusses characteristics of educational environments that facilitate success for culturally and linguistically diverse learners, and offers recommendations for adaptation, referral and assessment processes to better serve culturally and linguistically diverse students who may have learning disabilities. The author suggests that instruction should be as follows:

  > 1) teach basic skills, subjects or concepts; 2) reteach skills and content, using significantly different strategies or approaches, for the benefit of students who fail to meet expected performance levels after the initial instruction; 3) refocus instruction on the teaching of prerequisite skills for students who continue to experience difficulty even after approaches and materials have been modified.
  >
  > Aldelman 1970, p. 324.

Assessment of Students with Special Needs

- Cummins, J. (1984). *Bilingualism and Special Education: Issues in Assessment and Pedagogy.*

  The author reports that it takes about 5–7 years for immigrant students to acquire the grade-level standards in L2 (English) academic skills. Assessment should take this into account. The author mentions that immersion programs, when properly understood and implemented, appear to represent an appropriate form of enrichment bilingual education for all students, whether from a majority or minority language background, learning "disabled" or non-disabled.

- Gersten, R. and J. Woodward. (1994). "The Language-minority Student and Special Education: Issues, Trends and Paradoxes."

  This article discusses some of the tension in referral and instruction in bilingual education and special education. First the authors look at inadequacies in the assessment and placement of students from minority-language groups, which have led in some communities to overrepresentation of students from minority-language groups in special education. Often, few support services are available for minority-language students who are experiencing academic difficulties. Specialists wait until the students reach a certain level of proficiency in English so that the special education personnel will feel comfortable assessing and teaching them. As a result, there is a group of students with learning disabilities or other academic problems who have limited use of English and who are not receiving the kind of assistance they need. The authors go on to explore different teaching approaches for minority-language students. For special education teachers to fully meet the needs of their students, the teachers must draw from the cognitive tradition, use relevant curricular

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materials and create learning environments where students feel comfortable expressing their ideas in an L2—a task that is more challenging for special education students. Teachers may break complex concepts into small steps, but the task of encouraging students to talk and express their ideas is still a challenge.

- Schiff-Myers, N. B., J. Djukic, J. Mcgovern-Lawler and D. Perez. (1993). "Assessment Considerations in the Evaluation of Second-language Learners: A Case Study."

  This article argues that the learning of an L2 before the L1 is fully developed may result in arrested development or loss of proficiency in the L1. This article presents a case study of a child who was classified as "communication disabled." In fact, the child apparently lost or arrested development of his L1 (Spanish) before attaining full competence in his L2 (English). The child experienced a delay in both languages before eventually mastering English.

Teaching to Students with Special Needs

- Downey, D. M. (1992). "Accommodating the Foreign Language Learning Disabled Student."

  The author suggests that in order to be successful at the college level, many students with learning disabilities need to have the L2 requirement modified. With a modified curriculum, a controlled enrollment, concerted effort and a highly skilled instructor, most students with learning disabilities can complete at least two semesters of L2 study. Students who experience severe language or learning disabilities with deficits in vocabulary, syntax and memory will probably not be successful beyond the first or second semester of L2 study, despite classroom modifications.

- Echevarria, J. and A. Graves. (1998). *Sheltered Content Instruction: Teaching English-language Learners with Diverse Abilities.*

  The text presents a concise overview of the theory and practice of teaching L2 learners, while also providing rationale and strategies for teaching students with special needs. In Chapter 3, the authors discuss sheltered content instruction. In this type of instruction, teachers take into consideration their students' English language skills and modify the delivery of instruction by using slower speech, giving information verbally as well as visually and using controlled vocabulary, while at the same time striving for academically rigorous instruction that includes grade-level questioning.

  The authors conclude that students with language and learning disabilities need extra support. These students prefer tasks that are holistic in nature versus those that involve rote memorization, including drills and practices. They also prefer tasks that foster intrinsic motivation and a sense of success.

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- Fradd, S. H. and V. I. Correa. (1989). "Hispanic Students at Risk: Do We Abdicate or Advocate?"

  With the rapid growth of Hispanic student populations in the United States comes a corresponding increase in the number of students who have limited English proficiency as well as disabilities. Specific educational interventions, such as programs of English for speakers of other languages (ESOL) and bilingual instruction, are needed to enable these students to enter the mainstream. The chief obstacles to bilingual special education are the paucity of personnel training programs that include cross-cultural communication, and a lack of awareness of the need for these services. Transdisciplinary teaming is a cost-effective, appropriate approach to providing the services which both handicapped and at risk language minority students require. (p. 105).

- Gonzalez, V., R. Brusca-Vega and T. Yawkey. (1997). *Assessment and Instruction of Culturally and Linguistically Diverse Students with or At-risk of Learning Problems: From Research to Practice.*

  The authors present an overview of cultural and linguistic diversity as related to disabilities. Their goal is to assist educators working with culturally and linguistically diverse students by providing appropriate assessment and instructional services. In the first chapter, they demonstrate the difference between diversity and disability in students learning an L2. In the second chapter, they look at the legal aspects of bilingual and special education. In the third chapter, they present different assessments and approaches for mild disabilities and for cultural and linguistic differences, arguing that the two must be separated. In the fourth chapter, the authors recommend alternative assessment practices, such as portfolios and observation checklists, for students in these categories. In the fifth chapter, they present an assessment test called the Qualitative Use of English and Spanish Tasks (QUEST). In the sixth and seventh chapters, they look at linking assessment with instruction for diverse students and how to instruct these students. Finally, they present how to work with the families and how to organize support services to the students.

- Lacorte, M. (February 2001). "Interaction in the Foreign Language Classroom: Students with Learning Disabilities and Their Teachers."

  This paper examines the relationship between learning disabilities and L2 teaching. The main argument is that until a consensus is reached on how best to teach an L2 to a student who has a learning disability, instruction that emphasizes interaction is most likely to play an important role in ensuring success in inclusive settings. Future research on students who have learning disabilities needs to take into account individual learner variables, the social context and affective components of learning and teaching.

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- Leloup, J. W. and R. Ponterio. (1997). "Language Education and Learning Disabilities."

  These authors suggest that all students can learn an L2, and in fact should, in order to be fully functional in the global society. The result of increased interest in L2 learning, coupled with the current educational policy of inclusion, has changed the profile of students in the regular classroom. There are more students with special needs, and teachers do not receive the training necessary to fulfill their needs.

- Ortiz, A. (2001). *English Language Learners with Special Needs: Effective Instructional Strategies.*

  This report suggests that learners of English as an L2 who need special education services are disadvantaged by the shortage of special educators who are trained to address their language- and disability-related needs simultaneously.

- Root, C. (1994). "A Guide to Learning Disabilities for the ESL Classroom Practitioner."

  The author describes classroom behaviors associated with several common learning problems, presents the results of research into them and offers practical suggestions to classroom teachers.

- Sparks, R. L., L. Ganschow, S. Kenneweg and K. Miller. (1991). "Use of an Orton-Gillingham Approach to Teach a Foreign Language to Dyslexic/Learning Disabled Students: Explicit Teaching of Phonology in a Second Language."

  This study found that students who are dyslexic, learning disabled or otherwise at-risk, and who struggle in L2 classrooms, exhibited difficulties with the phonological and syntactic codes of the L2. The Orton-Gillinghan method described in this article is a multisensory, structured language approach that uses direct and explicit teaching of phonology. This method is used mostly with L1 learners and did not have a strong empirical base when the article was written. The authors offer a brief review of L2 literature. They also discuss the construct of "aptitude" for learning a foreign language as developed in Carroll's work. Carroll developed a test called the Modern Language Aptitude Test (MLAT). For Carroll, variables for success in learning an L2 are based on 1) phonetic code ability, to learn, recognize and remember sounds of a language and its printed symbols; 2) grammatical sensitivity, to recognize grammatical functions of words and other components of sentences as well as grammatical rules; 3) inductive L2 learning ability, the ability to infer linguistic rules, forms and patterns from new linguistic content; and 4) rote learning ability, which is the capacity to learn a large number of phonetic and grammatical associations quickly (Carroll and Sapon 1959, p. 100). In a later paper, Carroll (1973) notes that L2 learners may be stronger in one aspect than another. The authors also discuss another test, the Language Aptitude Battery (LAB) (1966), which includes verbal intelligence (the ability to manipulate verbal materials), motivation and auditory ability (sound discrimination and sound-symbol association tasks). These aptitude tests could be good predictors of L2 learning potential, but were not being used by L2 teachers. The authors continue their literature review by talking about the Linguistic Coding Deficit Hypothesis. According to this hypothesis, L2 learning

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problems of students who are learning-disabled or high-risk result from deficiencies in phonology and associated short-term memory deficits. The rest of the article examines a case study of teaching Spanish using the Orton-Gillingham method. The method includes explicit instruction for sounds and syntactic rules. At the time when this article was written, the "natural method" (Krashen) was very popular, but the authors suggest that learners with disabilities need more structure than this methodology provides.

Cognitive Approach and Students with Special Needs

- Ambert, A. N. (1986). "Identifying Language Disorders in Spanish Speakers."

  In this study, the author describes characteristics of Spanish-speaking children with language disorders. Her study found that the language of these children, who had limited English proficiency, deviated from the language of Spanish-speaking children who acquired language normally. The children with language disorders presented structural difficulties and pragmatic problems.

- Dinklage, K. (1971). "Inability to Learn a Foreign Language."

  This author reports on the relationship between dyslexia and L2 learning problems. He describes three types of unsuccessful L2 learners: students who were unable to "hear" the language and had problems with an oral communication approach to L2 learning; students who had difficulties with reading and writing the L2; and students who had memory problems with sounds and words, which often overlapped with listening difficulties.

- Durgunoglu, A. Y. (2002). "Cross-linguistic Transfer in Literacy Development and Implications for Language Learners."

  In this paper, the author summarizes the literature on cross-language transfer effects on literacy. Based on these data, the author suggests that assessing a language learner's use of transfer from one language to another could assist in diagnosing cognitive and learning problems. If the L2 learner has some strengths in their L1, and these strengths are transferable across languages, according to the author, these proficiencies will develop in the L2 also. For example, children who have a high phonological awareness in their L1 may transfer this ability to the L2. Children who have low metacognitive/metalinguistic awareness in their L1 may simply have had insufficient support at home or at school. They need instruction in the L2 and an assessment of their language and literacy levels. However, if students have had reasonable exposure and instruction in their L1 but still have not developed certain metacognitive and metalinguistic skills, then they may have cognitive/developmental deficits that will affect literacy development in both L1 and L2.

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- Ganschow, L., R. L. Sparks, J. Javorsy, J. Pohlman and A. Bishop-Marbury. (1991). "Identifying Native Language Difficulties Among Foreign Language Learners in College: A 'Foreign' Language Learning Disability?"

  This study compared 30 successful and unsuccessful college L2 learners on measures of intelligence, L2 aptitude, oral and written L1, and mathematics. No significant differences between groups were found on intelligence and reading comprehension. Significant differences were found on the Modern Language Aptitude Test, on tests of written and oral language in the syntactic and phonological domains and on mathematics calculations. The authors suggest that students with L2 learning difficulties might have underlying L1 problems, especially in the areas of syntax and phonology. These students are not less intelligent. They are just relatively weak in these areas.

  Research in L2 learning suggested that the rate of speech in the L2 classroom may affect listening comprehension. L1 oral communication deficits of students with learning disabilities may affect performance in L2 learning because of the emphasis on both oral and written language.

  These authors also review the literature on learning difficulties. They suggest that until recently, learning disabilities were thought to be visual-perceptual rather than linguistic. Recent evidence suggests that students with learning disabilities have deficits in one or more rule systems governing their L1. The presence of oral language and communication deficits associated with learning disabilities has been well established (Wiig and Semel 1980). Children with learning disabilities have comprehension problems with spoken language. This might result from the difficulties that these children have in dealing with the complex syntactic structures of spoken language. Children with learning disabilities also have deficits in written language that appear to persist into adulthood.

- Genesee, F., J. Paradis and M. Crago. (2004). *Dual Language Development and Language Disorders: A Handbook on Bilingualism and Second Language Acquisition.*

  This book examines L2 learners and the challenges they face. The introduction discusses dual language learners, that is, preschool and school-age children who have spoken two languages simultaneously from infancy, as well as children who are in the process of learning an L2. In communities where most children are monolingual, dual language learners sometimes suffer from discrimination. The book focuses on the typical language development of dual language learners, and on the identification of children who are experiencing disordered or impaired patterns of development that warrant clinical attention. Appropriate identification of language impairment and effective treatment of impairment in bilingual and L2 learners are also examined.

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- Geva, E., Z. Yaghoub-Zadeh and B. Schuster. (2000). "Understanding Individual Differences in Word Recognition Skills of ESL Children."

  These authors focus on the extent to which the development of ESL word-recognition skills parallels similar trajectories in English as a first language (EL1) in children of the same age. The authors also examine the extent to which phonological processing skills and rapid naming can be used to predict word recognition performance in children who are in ESL. Grade 1 ESL and EL1 learners in Toronto were followed for two years. The study found that vocabulary knowledge, a measure of language proficiency, and nonverbal intelligence were not significant predictors of word recognition in either group. It was possible to predict variance on word recognition performance by considering individual differences in phonological awareness and rapid naming for both groups after 6 months and one year. EL1 learners who were not considered at-risk performed better on oral language measures. EL1 and ESL learners who had difficulties in word recognition had similar low performance on rapid naming and phonological awareness. The authors suggest that phonological awareness and rapid naming may be useful in predicting in the development of reading skills in children who are in ESL.

- Lundberg, I. (2002). "Second Language Learning and Reading with the Additional Load of Dyslexia."

  The author examines critical issues of L2 literacy from the perspective of cognitive psychology. The focus of his paper is on:

  > how to interpret reading problems among individuals with a home language (L1) that is different from the language of instruction in school (L2). It is generally assumed that individuals who have to read in L2 face a more difficult task than individuals who learn to read in L1. And with a dyslexic disposition, L2 reading is certainly even more difficult. But is it possible to distinguish reading problems that are due to only the L2 load and those that are due to the additional load of dyslexia? (p. 166.)

  A further complication is that some of the literacy problems seen among immigrants (L2 readers) may be related to sociocultural variables rather than the presence of the L2.

  Students with dyslexia have problems in L2 learning. These students suffer from an impairment of the phonological processing system, a circumscribed submodule of the language system not related to general cognitive functioning. The weakness of the phonological system makes it difficult for the students to deal with alphabetic script that emphasizes phonological skills. The author notes that:

  > current conceptions of dyslexia emphasize the basic phonological problems underlying the word decoding difficulties typical of dyslexia (see Høien and Lundberg, 2000). This strong assumption will certainly be modified and extended as new knowledge on the genetic and neurobiological is accumulated. So far, however, most researchers tend to agree with the assumption that the core problem of dyslexia concerns the phonological system. And this view has clear implications for the diagnostic issue. (p. 184.)

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- Paradis, J., M. Crago, F. Genesee and M. Rice. (2003). "French-English Bilingual Children With SLI: How Do They Compare with Their Monolingual Peers?"

  The goal of this study was to determine whether bilingual children with specific language impairment (SLI) are similar to monolingual (English and French) age mates with SLI. All groups showed greater accuracy with non-tense morphemes than with tense morphemes. Bilingual children did not exhibit more profound deficits in the use of these grammatical morphemes than did their monolingual peers.

- Schwarz, R. L. (1997). "Learning Disabilities and Foreign Language Learning: A Painful Collision."

  The author suggests that failure to learn an L2 has long been blamed on factors such as anxiety about making mistakes in the L2 classroom, lack of effort or motivation, poor language learning habits and low "ability" in L2 learning. Ganschow and Sparks' Linguistic Coding Deficit Hypothesis states that difficulties with L2 acquisition stem from deficiencies in one or more of linguistic codes (phonological, semantic and syntactic) in the student's L1. Their view is that most learners experiencing difficulties in L2 learning have problems with phonological awareness. Ganschow and Sparks also investigated ways that students with learning disabilities can be helped to learn an L2. Finally, the author identifies two challenges in teaching an L2 to students with learning disabilities. First, it is rare that a school can devote an entire L2 section or class to these students. Second, it is also rare to find teachers who are trained in teaching an L2 to students with learning disabilities. These students usually find themselves in a class with "regular" L2 learners, and must rely on the willingness of the teacher to be inventive and flexible.

- Sparks, R. L. and M. Artzer. (2000). "Foreign Language Learning, Hyperlexia, and Early Word Recognition."

  This study reports on the L2 word recognition, spelling, reading comprehension, writing, speaking and listening skills of students with hyperlexia and students without hyperlexia. A student with hyperlexia is one who began to read words spontaneously before entering school, and who has impaired comprehension skills but higher word recognition skills than might be expected based on results of other cognitive and linguistic tests. In a previous study, one student with hyperlexia and another student with higher word recognition than comprehension skills who started to read words at a very early age were followed from primary grades to high school. The study cited here compared the L2 skills of the two students and another high school student without hyperlexia when they were completing a second-year Spanish (L2) course. Results showed that the third student achieved higher scores than the first two students on most L2 proficiency measures. The first two students achieved higher scores on the Spanish proficiency tasks that required the exclusive use of phonological and orthographic skills than on tasks that required the use of listening comprehension and speaking and writing skills. The authors conclude that the mind has a modular architecture, with modules such as: (1) general cognition, (2) linguistic proficiency (which could include aspects such as morphology, syntax and fluency), and (3) lexical knowledge (including aspects such as word recognition, spelling and pronunciation). The

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results of the study suggest that these modules behave independently and that students may have high or low abilities in any of the modules.

- Sparks, R. L. and L. Ganschow. (1993). "The Impact of Native Language Learning Problems on Foreign Language Learning: Case Study Illustrations of the Linguistic Coding Deficit Hypothesis."

  These authors propose to illustrate the Linguistic Coding Deficit Hypothesis (LCDH) by describing case studies of five learners with distinct language learning differences. LCDH theory is that inefficiency in the phonological, syntactic and semantic codes, rather than attitude and motivation, causes individual differences in L2 learning. The authors look at proficient and struggling L2 learners to identify prototypes. For example, one student could have high phonology, high syntax and high semantics abilities; another student might have low phonology, average syntax and high semantics; and so on. The authors argue that educators should look at cognitive explanations instead of focusing on motivation and attitude when they encounter students with difficulties.

Other Studies in Special Education

- Baca, L. M. and H. T. Cervantes. (1984). *The Bilingual Special Education Interface.*

  This textbook contains a wide range of information about bilingual special education. The nine contributors each specialize in special education. Each chapter finishes with a summary and questions related to the chapter. The content of the book is as follows:

  1) Bilingual education and equality of educational opportunity
  2) Bilingualism and bilingual education
  3) The education of children with exceptional needs
  4) Bilingual special education: a judicial perspective
  5) Development of the bilingual special education interface
  6) Language acquisition and the bilingual exceptional child
  7) Language assessment for bilingual exceptional children
  8) Assessment and the bilingual exceptional child
  9) Assessment procedures for the bilingual exceptional child
  10) Staffing and the development of individualized educational programs for bilingual exceptional students
  11) Parent and community involvement in bilingual special education
  12) Bilingual special education curriculum development
  13) Model programs in bilingual special education
  14) Mainstreaming and bilingual exceptional children
  15) Bilingual special education: issues in policy development and implementation.

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- Deponio, P., J. Landon and G. Read. (2000). "Dyslexia and Bilingualism–Implications for Assessment, Teaching and Learning."

  This study looked at 144 primary and secondary schools in Scotland and their processes for identifying bilingual students who may be dyslexic. The authors provide some criteria to teachers for identifying students with dyslexia in the early stages of schooling, and for providing appropriate support for literacy development that recognizes students' linguistic, cultural and individual differences. The authors identify a number of screening and diagnostic tests used to assess dyslexic students. Some of the tests were developed for bilingual learners (Sunderland et al. 1997). The authors provide checklists, interview guidelines, diagnostic tests, and information on cultural and linguistic factors that may affect diagnosis (p. 54). For example, when assessing bilingual and bicultural students, the professional needs to remain aware of the cultural values in relation to assessment.

  The phonological delay/deficit hypothesis is an accepted explanation of the difficulties experienced by monolingual dyslexic children (Snowing 1995, Frith 1997, British Psychological Society 1999). It may be the case for bilingual children as well. If so, the authors argue, it would be useful for the student to undertake a program of phonological awareness, including analogical reading. More practice in recognizing rhyme and syllable may be necessary for learners from certain language backgrounds. For example, speakers of Chinese have difficulty hearing the unstressed syllables in stress-timed English utterances.

  The authors contend that learning and overlearning are most effective for monolingual and bilingual learners when words are presented and used in meaningful contexts, and when the words come from the pupil rather than the teacher. This text discusses students who are bilingual, but the information is appropriate for use in teaching both monolingual and bilingual children with dyslexia.

- Donley, P. M. (2002). "Teaching Languages to the Blind and Visually Impaired: Some Suggestions."

  The author asserts that comprehensible input, social interaction and negotiation of meaning are important in the language acquisition process. Instructors should always try to provide an opportunity for input and meaningful interaction in language courses, and to create a classroom community in which all students are encouraged to grow and learn. However, students who have serious visual impairments may not benefit fully. This article includes a brief list of suggestions compiled after informally discussing with college L2 instructors and college students who are visually impaired some of the problems they have encountered. The article touches upon possible explanations for the difficulties students may face in L2 courses, and offers suggestions for making their language learning experiences more pleasant and successful.

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- Ganschow, L., E. Schneider and T. Evers. (2000). "Difficulties of English as a Foreign Language (EFL) for Students with Language-learning Disabilities (Dyslexia)."

  In this article, the authors explain how international students (whose L1 is not English) who come to the United States of America for university may find the admittance requirement of proficiency in English an insurmountable task if they have language learning difficulties. The authors point out that students who have problems when learning their L1 are almost certain to exhibit similar and often greater difficulties learning an L2 (Ganschow, Sparks and Javorsky 1998). Struggling L2 learners need systematic instruction in the structure of the L2 (Schneider 1999). Research has shown that students who receive this kind of instruction do make some progress but will not be at the same level as peers who have no disabilities. After discussing how American universities help these students, the authors conclude that students in this group who aspire to access university education need a variety of accommodations in English L2 learning, beginning in the early years.

- Halsall, N. (1998). "French Immersion: The Success Story Told by Research."

  The author states that researchers have found some lags in English language skills in French immersion students in grades 1 to 3. The lags disappear by Grade 4 or 5, independent of the proportion of English instruction time provided from Grade 3 onward (Edwards 1989). Immersion has been found to be suitable for students who are having academic difficulty and for students who have learning disabilities (Edwards 1989). Researchers have encouraged the development of strategies for working with students with special needs within an immersion program (Ali Khan 1993, Keep 1993, Wiss 1989).

- Karovitch, S. R., B. M. Shore and M. A. B. Delcourt. (1996). "Gifted and Nongifted Students' Reasons for Leaving French Immersion Programs."

  This study found that gifted students were less likely than nongifted students to leave French immersion programs. The authors state that immersion provides effective L2 teaching and is acknowledged as more challenging or difficult than the regular English program. However, it appears to provide insufficient opportunity for success and positive feedback to students with average abilities, and it still does not provide sufficient challenges for gifted students.

- Lanmark-Kaye, S. (1996). "The Appeal of the Early French Immersion Program: A Good Match for Gifted Students?"

  This study explored the extent to which different aspects of the early French immersion program appealed to gifted students and their parents. The study found that L2 learning did not appear as cognitively stimulating for gifted students as some of the research suggests. The students perceived that in the subject area surveyed, the communicative approach was not used more than the formal linguistic approach, even though they preferred communicative rather than formal linguistic types of activities.

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- Mannavarayan, J.-M. (2002). *The French Immersion Debate: French for All or All for French?*

  The author considers physiological and biological characteristics of learners, such as auditory ability, verbal memory and grammatical sensitivity, that affect L1 proficiency and may explain L2 learning difficulties. Her book is based on literature review of other authors, rather than on hard data.

- Rebuffot, J. (1993). *Le point sur ... L'immersion au Canada.*

  Research focused on two components: students whose intellectual abilities are below average and students who have learning disabilities or language problems. Genesee (1991, p. 79) notes that students whose intellectual abilities are below average have the same test results in immersion as students of comparable ability in the regular school system. Genesee concludes that French immersion had no negative effects on L1 or mathematics for these students. There are also no negative effects for students with learning disabilities who are in an immersion program (Bruck 1982). However, Rebuffot contends that students with language problems would have more difficulties in a French as a Second Language (FSL) course where the L2 is taught in terms of structures and language rules.

- Reid Lyon, G., S. E. Shaywitz and B. A. Shaywitz. (1998). "A Definition of Dyslexia."

  > Dyslexia is a specific learning disability that is neurobiological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge. (p. 2.)

- Schwarz, R. L. (1999). *The First International Multilingualism and Dyslexia Conference. Report.*

  This anthology contains the keynote speakers' lectures from an international conference on how dyslexia ("which Americans and Canadians define more broadly as learning disabilities," p. 1) affects the acquisition of an L2.

  Firstly, Tony Cline explains that research on dyslexia and multilingualism is usually separate. There is a need for an international test for dyslexia. Cline proposes a working definition of dyslexia as follows: "Dyslexia is evident when fluent and accurate word identification (reading) and/or spelling does not develop or does so very incompletely or with great difficulty" (p. 1).

  Secondly, Sparks and Ganschow provide a large base of knowledge in the area of L2 acquisition problems in high school and college students. These authors suggest that explicit instruction in the rule systems of the L2 is beneficial to students who have difficulty learning an L2. Their studies showed that there was no significant difference in the IQ, L1 skills and

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L2 aptitude of at-risk high school and college students who were classified as learning disabled and those who were not.

Thirdly, Esther Geva asserts that research does not support the idea that a reader who has strong word recognition in L1 will also have strong word recognition in L2. Geva explains that one is not a predicator of the other due to different degrees of transparency (how closely the sounds and orthography of a language correspond) between different languages. In contrast, phonological skills are predictive across languages, so if a student has strong phonological skills in one language, the student will also have strong skills in another language.

Fourthly, Usha Goswaimi discusses students who are at-risk in areas such as phonetic awareness, syllables, onsets and rhymes. These students seem to become poor readers in some languages but not in others because of transparency, frequency of word occurrence and size of the overall vocabulary in different languages. For example, if a language is very regular in spelling and has limited vocabulary, children naturally practice the predictable phonology of the language much more as they learn to read than do children learning to read in a language such as English, where the frequency of irregularities and the vast vocabulary inhibit such practice. The author does not report which languages are easier to learn than English.

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IV. The Effects of Learning a Third Language (L3) on Students for Whom English Is a Second Language (L2)

- The acquisition of a third language is a common occurrence around the world. Five types of trilinguals have been established, with most being bilinguals who acquire a third language. Although Canada is not officially a trilingual community, the number of trilinguals in Canada and in Canadian schools is growing. Students for whom English is a second language will become trilinguals if they take another language course. We have found no discussion of monolinguals acquiring a second and third language simultaneously, or of sequential acquisition where the second language is acquired in Kindergarten and the third language in Grade 4.
- Learning a third language is aided by proficiency in the first language, and acquired skills can be transferred among the languages spoken. Students for whom English is a second language may benefit from third-language acquisition, depending on the model of instruction.

Introduction

L3 acquisition, although a field of study still in its infancy, is a common occurrence in many countries. The linguistic environments of these countries require or encourage the knowledge and use of three languages. The five established groups of trilinguals (discussed on the next page) reflect these various situations. All of the groups experience similar effects of speaking three languages.

Although the linguistic environment of Canada does not demand the need for three languages to the same extent as other areas of the world, the number of trilinguals in Canada is increasing. More and more students in Canadian schools are trilingual, coming from homes in which two languages other than that of the community are spoken, or enrolling in school language programs that teach a language other than the two languages used at home or in the community. Not all trilinguals are trilinguals as a result of choice. They may be bilinguals who moved to a community in which a third language is used. In Alberta, learners of ESL may become trilingual when they are required to learn yet another language. Success in the acquisition of an L3 for these students is based on proficiency in the L1, the recency of the other languages spoken, linguistic distance between the languages and interlanguage transfer.

Trilingual educational programs have been put in place in several trilingual regions of Europe. Researchers have proposed methods to create the appropriate school setting for these trilingual communities. Although Canada does not fall into this category, it is important to examine how L3 instruction may be conducted for those students for whom English is an L2.

Researchers have found that being trilingual has many benefits. These are related to the global economy, including job opportunities as well as educational and sociocultural benefits. Knowing three languages opens the doors to a multitude of opportunities, and enhances understanding and appreciation of diversity in the world.

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Although research in the field of trilingualism is growing, there are no studies on individuals who are students of ESL and simultaneously learning an L3. There is also no empirical research that looks at either how monolinguals acquire L2 and L3 simultaneously, or sequential L2 and L3 acquisition, such as L2 in Kindergarten and L3 in Grade 4. Studying the development of trilinguals who are ESL students will be key to understanding how these individuals learn two new languages simultaneously.

Definition of Multilingualism/Trilingualism

- Tokuhama-Espinosa, T. (2003). "Myths about Multilingualism."

  The author presents 10 myths related to the subject. She first discusses the idea of "brain overload," which occurs when children learn more than one language. According to Ricciardelli (1992), multilinguals are more creative and have better problem-solving skills than monolinguals. Their ability to approach problems from a variety of angles is seen as a result of tools acquired through learning an L2. As to the idea that some languages are harder than others, the author notes that for a child, all languages are equally challenging and equally accessible. Another myth dispelled by the article is that multilingualism leads to language problems. This has been proven to be untrue, and it is noted that abilities in the L1 will have a positive effect on any subsequent languages learned. The final myth explored is that the more languages one knows, the easier it will be to acquire others. The author concurs with this idea, explaining that although the linguistic distance may be large, the strategies acquired in L1 and L2 will be beneficial to acquiring L3.

- Hoffmann, C. (2001). "Towards a Description of Trilingual Competence."

  Five different types of trilinguals are proposed in this article:
  1. trilingual children who grow up with two home languages that are different from the one spoken in the wider community
  2. children who grow up in a bilingual community and whose home language is different from the languages spoken in the community
  3. L3 learners, that is, bilinguals who acquire an L3 in the school context
  4. bilinguals who become trilingual through immigration
  5. members of trilingual communities.

- Genesee, F. and N. Cloud. (1998). "Multilingualism is Basic."

  This article presents the benefits of being multilingual. The authors point out that educators need to consider the growing diversity of students. In order to ensure success in the future, schools need to consider L2 and L3 learning. One area where multilingualism has many benefits is the economy. The authors state that "employment opportunities in education, the diplomatic corps, and tourism arise from knowing more than one language" (p. 62). In regard to education, the authors state that in today's diverse schools, language learning is a "value-added benefit of not only developing a second language, but also building cross-cultural skills at no cost to other educational goals" (p. 63). The authors add that multilingual

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students have access to people, places and information available in other languages. Students learning additional languages also have cognitive advantages, in that competence in more than one language enhances their educational experience. The final benefit discussed in the article relates to the sociocultural aspect of language learning. Knowledge in other languages permits people to expand their knowledge of the world. This in turn leads to greater understanding and appreciation of diversity.

Although the study of trilingualism is still in its infancy, it is a growing research area, related to a global reality. Researchers have established five types of trilinguals based on different linguistic environments. The majority of trilinguals are bilinguals learning an L3. Possessing skills in multiple languages leads to educational, economic and sociocultural benefits.

The Home Life of Trilinguals

- Barron-Hauwaert, S. (2003). "Trilingualism: A Study of Children Growing Up with Three Languages."

  In this study, 10 trilingual families in Europe were observed by the author, who is herself the mother of trilingual children. The families studied spoke two languages in the home and lived in a third language community. Each language used was specific to particular situations, and the mixing of languages was a common occurrence in these households. The choice of language was due to circumstance and could change frequently. The author notes that most trilinguals do not deliberately choose to acquire three languages, but do so as a result of their situation.

- Dagenais, D. and E. Day. (1999). "Home Language Practices of Trilingual Children in French Immersion."

  This case study of three trilingual students enrolled in French immersion programs in Vancouver looked at the use and perceptions of each student's and family's languages. The parents involved were in favour of their children learning an L3, and all maintained a strong link to their L1 (not English). The L1 was promoted and used in the home environment, and all of the families were in frequent contact with family and friends in their countries of origin. All of the students were conscious of the advantages of knowing three languages, and they considered themselves lucky to have this extra identity.

The number of trilingual students in Canada is increasing. Most parents are aware of the advantages of speaking three languages, as are the trilingual children. Students for whom English is an L2, including those who are learning two languages successively as well as those who already have bilingual competencies in languages other than English, develop certain tendencies of trilingual speakers, which may aid them in their language development. A limited amount of instruction will not lead to trilingual proficiency, but any amount of instruction time in an L3 will enable these students to develop their language learning skills.

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Education and Third Language Acquisition

- Cenoz, J. (2003a). "The Additive Effect of Bilingualism on Third Language Acquisition: A Review."

  Cenoz discusses the effect of being bilingual when learning an L3. She states that although bilingualism has positive effects on L3 learning, attitude and motivation are also essential factors for L3 acquisition. Proficiency in L1 and L2 is another factor that will affect the proficiency and success in the L3. Cenoz also refers to results of studies done in double immersion schools in Canada that indicate that the simultaneous acquisition of two languages presents positive outcomes (Genesee 1998). This underlines the idea that being bilingual aids L3 acquisition, whether the languages are being learned simultaneously or consecutively. Cenoz concludes by saying that multilinguals may produce more errors than their monolingual counterparts, but tend to progress faster as well.

- Cummins, J. (2001). "Instructional Conditions for Trilingual Development."

  The author proposes a framework students can use to "harvest the language" and expand their cognitive, personal and linguistic resources. This framework is comprised of three focuses: focus on meaning, focus on language and focus on use. It is intended that educators use this framework in their L2 instruction to ensure students are "given opportunities for knowledge and identity affirmation" (p. 63). The author concludes by stating that for successful L2 learning, language must become an object of fascination and excitement and students must be given ample access to authentic communication.

- Cenoz, J., B. Hufeisen and U. Jessner. (2001). "Towards Trilingual Education."

  This article presents trilingual education in the context of a global phenomenon. The particular focus is Europe, where English is generally the first L2 learned. This area of study is still relatively new, so it is closely linked to the study of bilingualism and L2 acquisition. The authors discuss sociolinguistic and psycholinguistic factors and the role of linguistic distance, and the influence of these factors on the planning of trilingual education.

- Ytsma, J. (2001). "Towards a Typology of Trilingual Primary Education."

  The author presents an analysis of the various types of trilingual education, in order to categorize the increasing trilingual education phenomenon in Europe. A trilingual school is defined as "a school that deliberately aims to establish additive trilingualism among its students" (p. 12). The author stresses that this does not mean an equal level of competency is achieved in each language. The particular aim is functional trilingualism. The typology proposed by the author is based on three criteria: linguistic context, linguistic distance and program design (simultaneous versus consecutive). Several schemas are proposed for achieving trilingualism in a primary educational setting.

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Trilingual educational settings are relatively common in Europe due to the nature of the linguistic environments. Several researchers have provided methods of how to create an appropriate school setting for trilingual communities. It will be important in Alberta to examine how L3 instruction will be conducted for those students who are still learning English as an L2 and who must also study an additional language under the Alberta Languages Initiative.

Effects of Learning Three Languages

- Dewaele, J. M. (2002). "Psychological and Sociodemographic Correlates of Communicative Anxiety in L2 and L3 Production."

  This study analyzed the idea of anxiety in L2 and L3 acquisition, which according to Philipps (1991) causes negative effects on learning. Anxiety may be a result of difficulties with the L1 as well as community views of L2 learning. The study found that there is a difference between the anxiety level of L2 learners and L3 learners, with anxiety decreasing as subsequent languages are learned. The author suggests that further studies need to be done.

- Griessler, M. (2001). "The Effects of Third Language Learning on Second Language Proficiency: An Austrian Example."

  This study looked at three different school settings in Austria and compared the English (L2) proficiency of the students. One school was an immersion school where English was the language of instruction. In this school, additional languages were introduced in Grade 7, 2 years after English instruction begins. A second school was a typical Austrian high school, which focused on the science areas rather than languages, and where English was taught as a separate course. The third school in the study was a *lycée*, based on the French school system, where English instruction began in Grade 5 (3–5 lessons a week) and French (the L3) began in Grade 7. Each school had a different approach to teaching English, and the levels of proficiency varied according to each method. Overall, the students at the immersion school had the highest level of proficiency, followed by the *lycée* students. The students at the regular high school scored the lowest in all categories tested. The author concludes that knowledge of additional languages (as in the *lycée*) or greater use of English as an L2 (as in the bilingual setting) greatly enhances the proficiency in English.

- Dagenais, D. and E. Day. (1998). "Classroom Language Experiences of Trilingual Children in French Immersion."

  This study precedes the study done by the same authors on home language experiences of trilingual children (1999). Many parents who speak a minority language decide to enroll their children in immersion and, for the most part, the students are successful. The study found that teacher views of the minority languages had an impact on learning: a positive view of multilingualism was advantageous. The three children in the study were conscious of the use of their three languages and the benefits they had because they were trilingual. Each language had a specific setting and a specific group of people with whom it was used.

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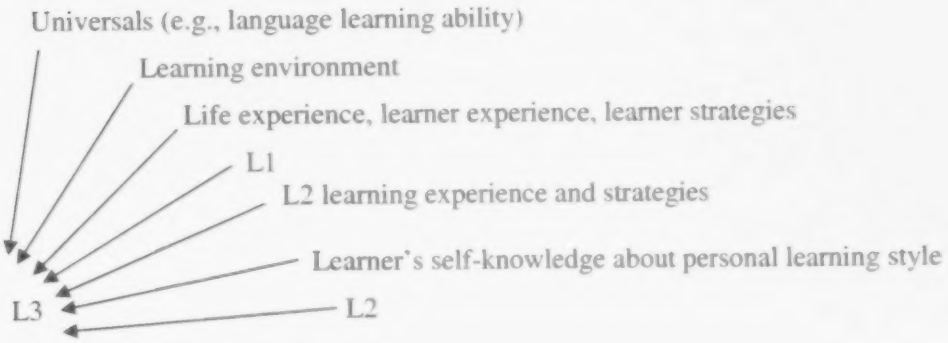
The teachers stated that all three children were succeeding in the French immersion program and that the children used their language proficiency as a resource rather than letting it be a handicap.

- Hufeisen, B. (2000). "A European Perspective: Tertiary Languages with a Focus on German as L3."

  The author discusses several important ideas about L3 learning: language proficiency varies over time; L3 learners are more competent language learners due to previous experience; they are more confident learners; they are better at anticipating and recognizing possible difficulties, and they tolerate difficulties better. The author states that an individual's subsequent languages may influence one another, often independently of the L1. This interaction causes some interference, but it also creates opportunities for the language learner and the instructor. The author's ideas are illustrated as follows:

Factors that Affect Learning an L3



- Cenoz, J. (2003b). "The Effect of Linguistic Distance, L2 Status and Age on Cross-linguistic Influence in Third Language Acquisition."

  This study, done in the Basque region of Spain, examined cross-linguistic influence on an L3 (English) of speakers whose L1 and L2 were Basque and Spanish. Ninety elementary and secondary students were asked to tell the "Frog, Where Are You?" story in English. Spanish was the language most often used to transfer to English, presumably because the linguistic distance is small compared to the distance between Basque and English. Older students used more cross-linguistic references than the younger students. This may indicate that the perception of linguistic distance had an effect on the transfer, as older students would likely be more aware of the proximity of Spanish and English. Students transferred more content words than function words. The author confirms other researchers' conclusions that proficiency in L1 will affect the transfer to L2 and L3: the lower the proficiency, the higher the transfer. She also states that recency is an important factor in cross-linguistic transfer: the students tended to borrow from the language or languages they used frequently rather than all of the ones they knew.

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- Hammarberg, B. (2003). "Roles of L1 and L2 in L3 Production and Acquisition."

  This study, done in Sweden, followed a multilingual woman (English L1, German principal L2 (the L2 in which she felt most comfortable and used most frequently prior to moving to Sweden), French and Italian additional L2s (French preceding Italian) and Swedish L3) as she progressed with her language proficiency in Swedish. In the beginning, she often used transfers from German, her most recent L2, and some transfers from English. Her accent in the beginning was strongly German. After this disappeared, there was a slight English accent. After several years, this accent too disappeared. The language transfers were more frequent in the beginning, stopping gradually as proficiency increased. The author recognizes the influence of L1 and L2 on L3 and concludes that proficiency, recency and status all affect L3 acquisition.

- Swain, M. and S. Lapkin. (1991). "Heritage Language Children in an English-French Bilingual Program."

  According to the authors, many families who speak a minority language feel that their heritage language is not a priority; they want their children to learn the majority language (such as English) as soon as possible in order to function in the community. Two studies compared groups of Grade 8 students in an English-French bilingual program, one group who spoke a minority language as L1 and English as L2, and one group who spoke only English as L1. The first study found that the group whose L1 was a minority language performed better on cloze tests, oral measures and grammatical measures in French than the group whose L1 was English. However, they did not use a more diverse lexicon. The second study, which focused on literacy skills, found similar results. The authors conclude that literacy skills in a minority language have a positive effect on L3 learning.

- De Angelis, G. and L. Selinker. (2003). "Interlanguage Transfer and Competing Linguistic Systems in the Multilingual Mind."

  The authors report on interlanguage transfer among trilinguals. This transfer occurs between L2 and L3. The possibility of interlanguage transfer is proportionate to the number of languages one speaks. The authors conducted a study of two multilingual adults. Both subjects were tested in their knowledge of Italian (their L3), and the authors looked at interlanguage transfers from the subjects' other languages. There was evidence of transfer from the L2 of each speaker in both lexical and morphological areas. The authors conclude that speakers of three or more languages may mix components of all of their available language systems, and each language may have an influence on the others.

Success in L3 acquisition is based on proficiency in L1, the recency of the L2, linguistic distance and interlanguage transfer. Students of ESL may find it beneficial to learn an L3, as it may improve their understanding of English (depending on their L1 as well as the L3).

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V. Conclusion

Each of the four sections of this report have summarized research findings that can inform the Alberta Learning Languages Initiative. Each section has also revealed certain gaps in the literature. This report concludes that exposure to an L2 (a) has no negative effects on the L1, and (b) enhances certain L1 linguistic skills and other aspects of cognitive performance. Content-based Language Teaching (CBLT) can be a good method of delivering an L2 to students, and both content and language skills can be acquired using a range of instructional options. However, a certain level of L2 proficiency is required before students can take full advantage of CBLT in subject areas that are cognitively demanding. Researchers are learning more and more about the diagnosis and treatment of a range of learning disorders. Researchers know less about the diagnosis and treatment of students with special needs who are learning an L2 or L3. Drawing on successes in the instruction of students with special needs, this report concludes that appropriate planning and accommodation can allow these students to acquire an L2. Trilingualism is becoming more and more common around the world, and that this multilingual ability enhances both the home life and cognitive abilities of the students. While researchers are gaining more knowledge about bilinguals acquiring an L3, they still know relatively little about monolinguals acquiring L2 and L3 simultaneously, or about sequential acquisition of L2 and L3, such as L2 in Kindergarten and L3 in Grade 4.

We applaud Alberta Learning in implementing this Languages Initiative, and hope that the scholarly literature we have summarized—on the effects of the L2 on the L1, the role of CBLT, teaching children with special needs, and L3 acquisition—will be helpful in promoting the Languages Initiative throughout the province and around the world, and in making further policy decisions.

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